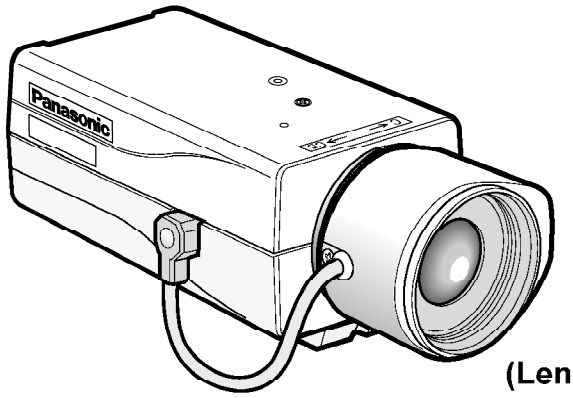
ORDER NO. AVS0110390C8

Service Manual

Colour CCTV Cameras

WV-CP240 Series



(Lens: Option)

SPECIFICATIONS

Pick-up device:	752 (H) x 582 (V) pixels, interline transfer CCD	
Scanning area:	4.89 (H) x 3.67 (V) mm (equivalent to scanning area of 1/3" pick-up tube)	
Synchronization:	internal, line-locked or multiplexed vertical drive (VD2), selectable	
Scanning system:	2 : 1 interlace	
Scanning:	625 lines / 50 fields / 25 frames	
Horizontal:	15.625 kHz	
Vertical:	50 Hz	
Horizontal resolution:	480 lines	
Video output:	1.0 V[p-p] PAL composite 75 Ω / BNC connector	
Signal-to-noise ratio:	50 dB (equivalent to AGC Off, weight On)	
Electronic light control:	equivalent to continuous variable shutter speed between 1/50 s and 1/15 000 s	
Minimum illumination:	0.6 lx (0.06 foot-candle) at F0.75 [equivalent to 2.0 lx (0.2 foot-candle) at F1.4] AGC On	
Detail:	SHARP or SOFT, selectable	
Lens mount:	C-mount or CS-mount, selectable	
Ambient operating temperature:	-10°C - +50°C (14°F - 122°F)	
Ambient operating humidity:	less than 90 %	
Power source and power consumption:	WV-CP240:	220 V - 240 V AC 50 Hz, 3.4 W
	WV-CP242E:	12 V DC, 270 mA
	WV-CP244E:	24 V AC 50 Hz, 3.3 W
Dimensions (without lens):	67 mm (W) x 65 mm (H) x 123 mm (D)	
	2-5/8" (W) x 2-9/16" (H) x 4-13/16" (D)	
Weights (without lens):	WV-CP240:	0.495 kg (1.09 lbs)
	WV-CP242E:	0.33 kg (0.73 lbs)
	WV-CP244E:	0.35 kg (0.77 lbs)

Weights and dimensions indicated are approximate.
Specifications are subject to change without notice.

Panasonic

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.

This symbol alerts the user that impotant literature concerning the operation and maintenance of this has been included. Therefore, it should be read carefully in order to avoid any problems.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are indicated by the "⚠" mark on the schematic diagram and the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent x-radiation, shock, fire, or other hazards. Do not modify the original design without permission of manufacture.

STANDARD ACCESSORIES

Body Cap ..... 1 pc.
ALC Lens Connector (YFE4191J100) ..... 1 pc.

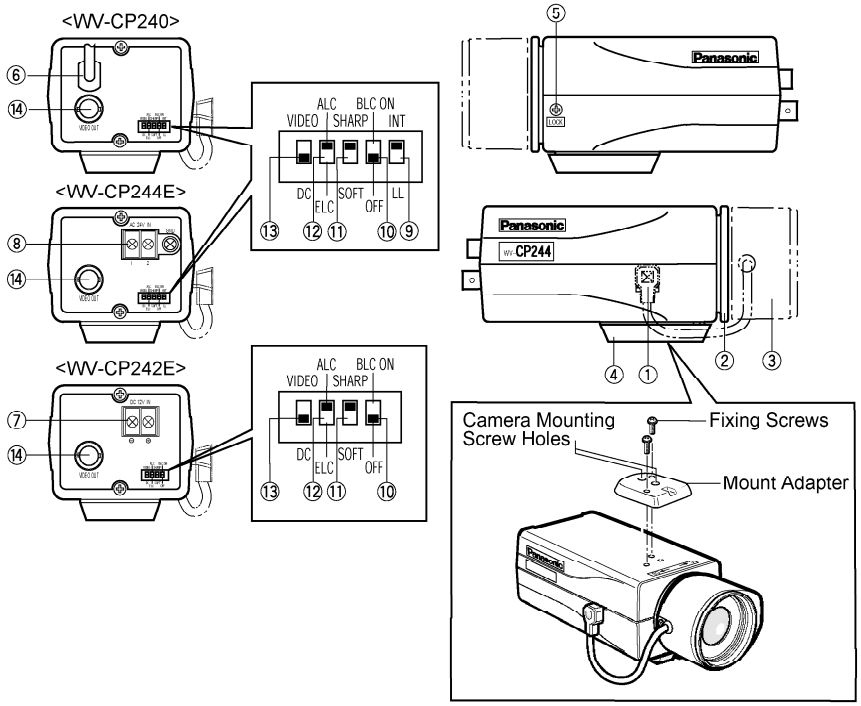
OPTIONAL ACCESSORIES

Lenses : WV-LA2R8C3B, WV-LA4R5C3B, WV-LA9C3B, WV-LA210C3, WV-LA408C3, WV-LA908C3, WV-LZ61/10, WV-LZ62/2, WV-LZ62/8, WV-LF4R5C3A, WV-LF9C3A, WV-LFY3C3, WV-LFY45C3,WV-LFY9C3,

CONTENTS

MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS 1
ADJUSTMENT PROCEDURE 2
LOCATION OF TEST POINTS AND ADJUSTING CONTROLS 10
BLOCK DIAGRAM
SENSOR BOARD 11
VIDEO BOARD/POWER BOARD 12
SCHEMATIC DIAGRAM
SENSOR BOARD (1/2) 13
SENSOR BOARD (2/2) 14
VIDEO BOARD (1/2) 17
VIDEO BOARD (2/2) 18
POWER BOARD (WV-CP240) 19
POWER BOARD (WV-CP242E) 20
POWER BOARD (WV-CP244E) 21
CONDUCTOR VIEW
SENSOR BOARD 15
VIDEO BOARD 16
POWER BOARD (WV-CP240) 19
POWER BOARD (WV-CP242E) 20
POWER BOARD (WV-CP244E) 21
WIRING DIAGRAM 22
EXPLODED VIEW
WV-CP240 23
WV-CP242E 24
WV-CP244E 25
REPLACEMENT PARTS LIST 26

MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS



① **Auto Iris Lens Connector**
Supplies power and control signals to an auto iris lens (not supplied).

② **Flange-back Adjusting Ring**
This ring adjusts the back-focal distance or picture focus. Rotate this ring clockwise for a C-mount lens or counterclockwise for a CS-mount lens.

③ **Lens (option)**

④ **Mount Adapter**
The camera mounting screw hole is for mounting the camera onto a mounting bracket. The camera is originally designed to be mounted from the bottom, however, a top-mounting type is also available. To mount from the top, remove the mount adapter from the bottom of the camera by removing two fixing screws. Attach the mount adapter to the top as shown in the diagram, then mount the camera on the mounting bracket. Make sure that two original screws are used when mounting the mount adapter; longer type screws may damage inner components, too shorter type screws may cause the camera drop.

⑤ **Focus Fixing Screw**

⑥ **Power Cord (only for WV-CP240)**
Connect this power cord to an electrical outlet of 220 V - 240 V AC 50 Hz.

⑦ **DC 12 V Input Terminal**
[DC 12V IN (only for WV-CP242E)]
This terminal is for connecting the 12 V DC power supply cord.

⑧ **AC 24 V Input Terminal**
[AC 24V IN (only for WV-CP244E)]
This terminal is for connecting the 24 V AC 50 Hz power supply cord.

⑨ **Synchronization Mode Selector**
[INT, LL (only for WV-CP240 and WV-CP244E)]
Selects the camera synchronization mode as either internal sync mode (INT) or line-lock mode (LL).
INT: Sets to internal 2:1 interlace.
LL: Sets to Line-lock mode.

⑩ **Back Light Compensation Mode Selector (BLC ON, OFF)**
Lets you select the mode according to the position of the object and light conditions on the screen.
ON: Select this mode when a strong light such as a spotlight is in the background.
OFF: Normal picture.

⑪ **Detail/Aperture Level Selector (SHARP, SOFT)**
The detail/aperture level can be selected with this selector. Set it to the desired position while observing the picture on the monitor.
SHARP: Normal position.
SOFT: Select this position when a Quad System is connected to this camera.

⑫ **Automatic Light Control/Electronic Light Control Selector (ALC, ELC)**
Lets you select the mode according to the lens type used.
ALC: Select this mode when an auto iris lens (ALC lens) is used with this camera.
ELC: Select this mode when a fixed iris lens or manual iris lens is used with this camera.

⑬ **Lens Drive Signal Selector (VIDEO, DC)**
Lets you select the mode according to the type of auto iris lens drive signal to be supplied to the lens from the auto iris lens connector.
VIDEO: Select this mode if you are using a auto iris lens that requires a video drive signal.
DC: Select this mode if you are using a auto iris lens that requires a DC drive signal.

⑭ **Video Output Connector (VIDEO OUT)**
This connector is for connecting with the VIDEO IN connector of the video monitor.
Whenever the multiplexed vertical drive (VD2) signal is supplied to this connector, the camera synchronization mode is automatically set to Vertical Drive.

Caution:
- Connect to 12 V DC (10.5 V-16 V) or 24 V AC (19.5 V-28 V) class 2 power supply only. Make sure to connect the grounding lead to the GND terminal when the power is supplied from a 24 V AC power source.

ADJUSTMENT PROCEDURE

1. Test Equipment Required

The following Test Equipments are required for Adjustment of the Colour CCTV Cameras.

- Oscilloscope
- Digital Voltmeter
- Frequency Counter
- Vectorscope
- Underscanned Colour Video Monitor
- 12 V DC/24 V AC Power Supply Unit
- Personal Computer (IBM PC/AT type or equivalent)
- ALC Lens (WV-LA9C3 or equivalent)
- Lighting (140 footcandles (1 400 lx), Colour Temperature 3 200ºK)
- 40 watt Lamp
- Lux Meter
- Colour Chip Chart
- White Chart or White Paper
- Radiation Chart
- Logarithmic Gray Scale Chart
- Electric Variable Resistor (E. V. R.) Adjustment kit (Part Number: YWV0JA0019AN) as shown in Fig. 1-1.

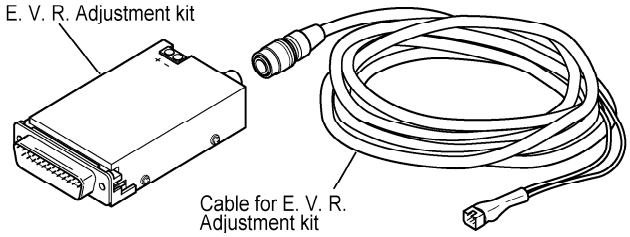


Fig. 1-1

2. Disassembling Procedure for Adjustment

- Referring to Fig. 2-1, remove two screws that secure the Mount Adapter and remove the Mount Adapter.

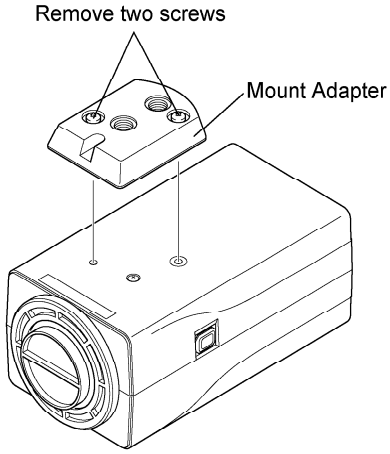


Fig. 2-1

- Referring to Fig. 2-2, remove three screws that secure the Bottom Cover and remove the Bottom Cover.

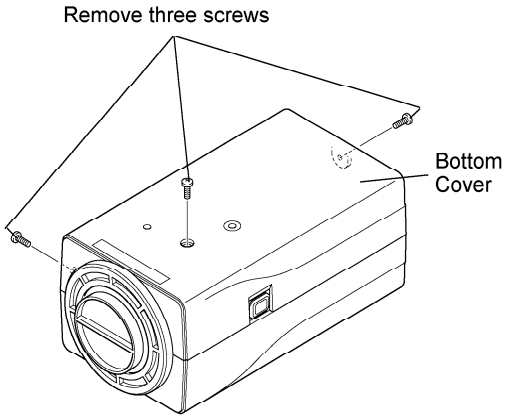


Fig. 2-2

- Referring to Fig. 2-3, remove two screws that secure the Upper Cover and remove the Upper Cover.

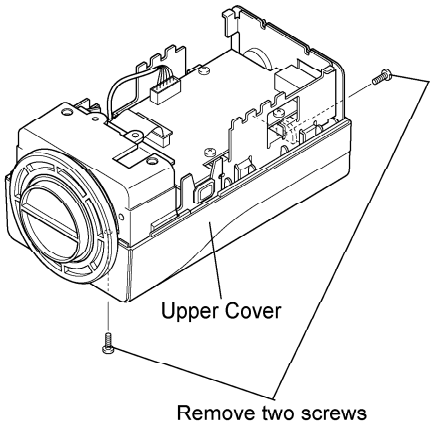


Fig. 2-3

3. Optical Ass'y Replacement Procedure

- Disassemble the Camera while referring to the item **2. Disassembling Procedure for Adjustment**.
- Referring to Fig. 3-1, disconnect the connector CN1 on the Video Board and remove the Flexible Board.
- Referring to Fig. 3-1, remove two screws (Left x 1,Rigit x 1) that secure the Front Unit and remove the Front Unit.

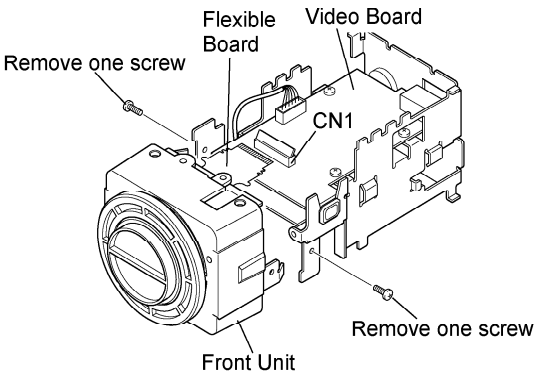


Fig. 3-1

- Referring to Fig. 3-2, remove two screws that secure the Front Shield Plate and remove the Front Shield Plate from the Front Unit.

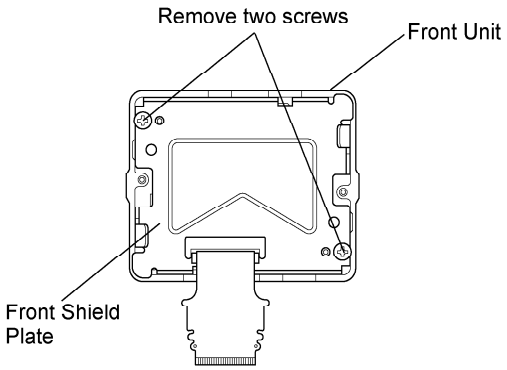


Fig. 3-2

- Referring to Fig. 3-3, remove two screws that secure the Sensor Board and remove the Sensor Board from the Front Unit.

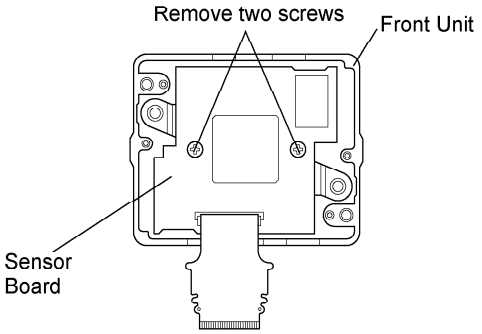


Fig. 3-3

- Remove the Optical Ass'y (IC1) from the Sensor Board.

4. Connection and Setting Up for Adjustment

4.1. Connection

- The Fig. 4-1 shows the connecting diagram for the Adjustment Procedure.

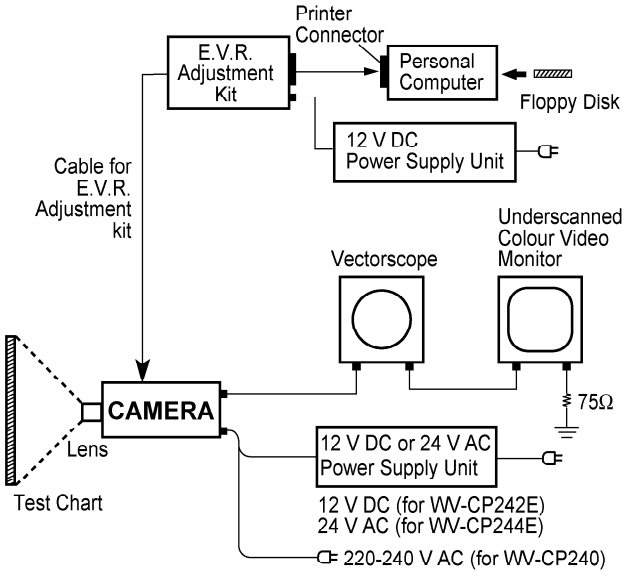


Fig. 4-1

- Connect the probe of the Digital Voltmeter, Oscilloscope or Frequency Counter at the desired Test Point in each adjustment step.

4.2. Setting Up for E.V.R. Adjustment Kit

<Connecting for E.V.R. Adjustment>

- Referring to Fig. 4-1, connect the E. V. R. Adjustment kit to CN2 on the Video Board of the Camera using the Cable for E. V. R. Adjustment kit.
- Connect the connector of the E. V. R. Adjustment Kit to Personal Computer (IBM PC/AT type) using the printer connector.
- Insert original floppy disk of E. V. R. Adjustment Kit to the computer.

< Installing E.V.R. Adjustment Program >

- Make a copy of following necessory files to your computer from original floppy disk of the E.V.R. Adjustment Kit.

  LADJ.EXE
  CP240E.SEQ
  CP240E.EVR

<Procedure>

1. Confirm that the CONFIG.SYS file on your computer contains DEVICE=ANSI.SYS.
2. Insert floppy disk containing E.V.R.adjustment program into your floppy drive (for example,drive:A) and type **A:**
3. At the prompt, type **CD IBMPC** and press **ENTER** key.
4. Type **COPY LADJ.EXE B:** and press **ENTER** key.
5. Type **CD** and press **ENTER** key.
6. Type **CD SEQ** and press **ENTER** key.
7. Type **COPY CP240E.SEQ B:** and press **ENTER** key.
8. Type **CD** and press **ENTER** key.
9. Type **CD EVR** and press **ENTER** key.
10. Type **COPY CP240E.EVR B:** and press **ENTER** key.
11. After completing installation of program, you are ready to use the E.V.R. adjustment program.

4.3. Setting Up

<Initial Position of the Switches for Adjustment>

- An initial setting of the Switches on the Rear Panel (Video Board SW1) as follows:
  Synchronization Mode Selector (INT,LL) .....INT
  (only for WV-CP240 and WV-CP244E)
  Back Light Compensation Mode Selector
  (BLC ON,OFF) .....OFF
  Detail/Aperture Level Selector
  (SOFT,SHARP) .....SHARP
  Automatic Light Control/Electronic Light Control Selector
  (ALC,ELC) .....ALC
  Lens Drive Signal Selector (VIDEO,DC) .....DC

- The adjustments should be done with this initial setting, unless otherwise specified.

- The adjustments should be done after 10 minutes warm up.

5. Adjustment Procedure

- Refer to the Location of Test Points and Adjusting Controls on the page 10.

<Adjustment Procedure-1>

1. VSUB Adjustment

Test Point: **CN5 (Video Output Connector)** **Video Board**
Adjust: **VR2 (VSUB)** **Video Board**

- Connect the Video Monitor to CN5.
- Mount the ALC Lens on the Camera.
- Open the Lens Iris fully.
- Aim the Camera at the bright object such as 40 watt lamp.
- While observing the picture on the Video Monitor, adjust VR2 so that the blooming becomes minimum as shown in Fig. 5-1.

Notes:

- VR2 should be adjusted to the point where blooming just disappears and minimize the Smear as shown in Fig. 5-1 (Good).
- Do not adjust VR2 more than the point.

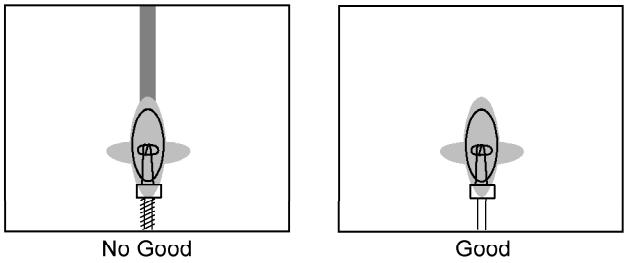


Fig. 5-1

2. Reset Bias Adjustment

Test Point: **Pin 5 of CN2 (CCD OUT)** **Sensor Board**
Adjust: **VR1 (RESET BIAS)** **Video Board**

- Close the Lens Iris.
- Connect the Oscilloscope to Pin 5 of CN2.
- Trigger the Osilloscope at H-rate.
- Adjust VR1 so that the Reset Noise becomes maximum as shown in Fig. 5-2.

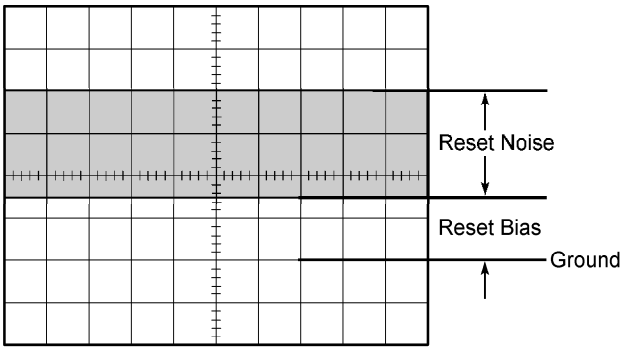


Fig. 5-2

- Open the Lens Iris.

3. Line Lock VCO Adjustment (only for WV-CP240 and WV-CP244E)

Test Point: **TP1 (LL VCO)** **Video Board**

Adjust: **L1 (LL VCO)** **Sensor Board**

- Remove the Sensor Board from the Front Unit while referring to the item **3. Optical Ass'y Replacement Procedure.**
- Set the Synchronization Mode Selector (on the Video Board SW1) to LL position.
- Connect the Digital Voltmeter to TP1.
- Adjust L1 so that the voltage becomes 1.65 V ± 0.35 V.
- Return the Synchronization Mode Selector (on the Video Board SW1) to INT position.

4. Flange-back Adjustment

Test Point: **CN5 (Video Output Connector)Video Board**

Adjust: **Flange-back Adjusting Ring**

- Open the Lens Iris fully.
- Set the Radiation Chart.
- Aim the Camera at the Radiation Chart distance of 10m.
- Referring to Fig. 5-3, loosen the Focus Fixing screw (LOCK) that secure the Flange-back Adjusting Ring.

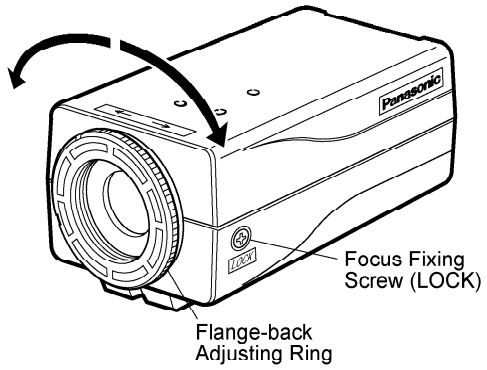


Fig. 5-3

- Adjust the Flange-back Adjusting Ring to obtain best focal point.
- Tighten the Focus fixing screw (LOCK) that secure the Flange-back Adjusting Ring carefully.

<Adjustment Procedure-2 > (E.V.R. Adjustment)

- Insert new disk containing the E.V.R. Adjustment program into IBM PC/AT and turn on the Power Switch of IBM PC/AT.
- When starting an adjustment, at the prompt, type **LADJ CP240E** and press the **ENTER** key, an initial menu will be displayed in Table 5-1.

```
PANASONIC REMOTE EVR ADJUSTMENT SYSTEM (C) MCI Co. CCTV PRODUCT:CP240 EEPROM:0
* * * * * * * * * * * * * * * * * * * * * MENU * * * * * * * * * * * * Page (1/1)* * * * * PAL
1. FSC ADJUSTMENT
3. ALC LEVEL
4. AGC OFF GAIN
5.1. OB LEVEL
5.2. VIDEO OUT GAIN
5.3. OB CONFIRM
6.1. BURST LEVEL
6.2. BURST LEVEL
6.3. BURST LEVEL
6.4. BURST LEVEL
7.1. 3200K R GAIN
7.2. 3200K B GAIN
7.3. 3200K PHASE
7.5. COLOUR CENTER POINT ADJUSTMENT
8.1. ATW CONFIRM
8.2. HI LIGHT CHROMA CLIP
<CONTENTS>  TP2 [MAIN] 14.18750 MHz + - 40 Hz
<INSTRUCTION> PLEASE CHOOSE MENU DATA BY ARROW-KEY
  LOAD (F1)      QUIT (F3)      SAVE (F5)
```

Table 5-1

- Press the **SAVE(F5)** key of the Computer, then the Computer will ask you for the file name.
- Type **xxxxxxxx.EVR**. Give an appropriate file name for **xxxxxxxx** within 8 letters, but do not use **CP240E**.
- Press the **ENTER** key.
- This saving procedure is recommended to keep the current adjustment status of the Camera.
- Press the **LOAD(F1)** key and type **CP240E.EVR** and press the **ENTER** key for presetting adjustment of the Camera.
- Press the **ENTER** key to start adjustment.

1. FSC Adjustment

Test Point: Pin 2 of CN2 (14MHz) Sensor Board

- Set the Synchronization Mode Selector (on the Video Board SW1) to INT Position.
- Connect the Frequency Counter to Pin 2 of CN2.
- Adjust data with the **ARROW** keys so that the Subcurrier Frequency becomes 14.18750 MHz ± 40 Hz.
- Press the **ENTER** key for next adjustment.

3. ALC Level Adjustment

Test Point: Pin 1 of CN2 (CDS OUT) Sensor Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Osilloscope to the Pin 1 of CN2.
- Adjust data with the **ARROW** keys so that the CDS OUT signal level becomes 300 mV ± 30 mV as shown in Fig. 5-4.

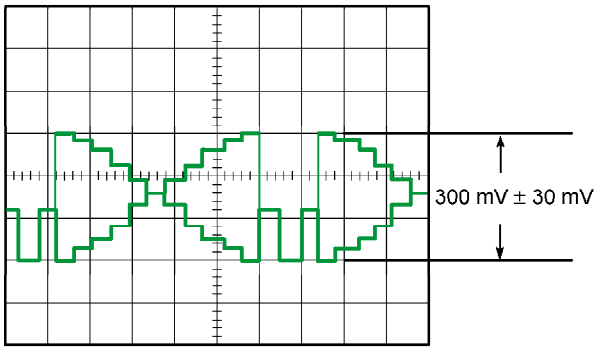


Fig. 5-4

- Press the **ENTER** key for next adjustment.

4. AGC OFF Gain Adjustment

Test Point: Pin 3 of CN2 (AGC OUT) Sensor Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the Osilloscope to the Pin 3 of CN2.
- Adjust data with the **ARROW** keys so that the AGC OUT signal level becomes 300 mV ± 30 mV as shown in Fig. 5-5.

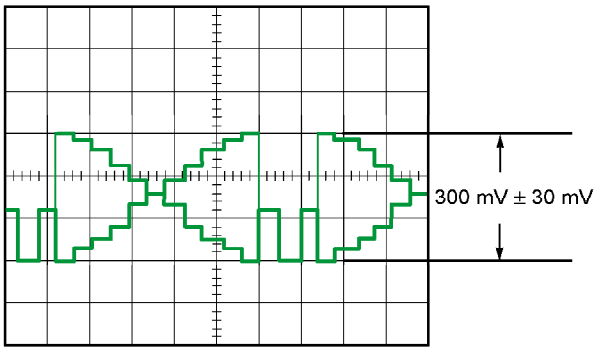


Fig. 5-5

- Press the **ENTER** key for next adjustment.

5.1. OB Level Adjustment

Test Point: CN5 (Video Output Connector) Video Board

- Connect the terminated Osilloscope with 75Ω to CN5.
- Adjust data with the **ARROW** keys so that the Pedestal level becomes 50 mV ± 10 mV as shown in Fig. 5-6.

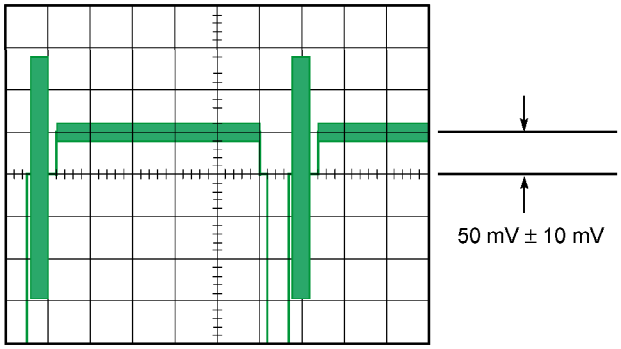


Fig. 5-6

- Press the **ENTER** key for next adjustment.

5.2. Video Output Gain Adjustment

Test Point: CN5 (Video Output Connector) Video Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75Ω to CN5.
- Adjust data with the **ARROW** keys so that the Video signal level becomes 700 mV ± 50 mV as shown in Fig. 5-7.

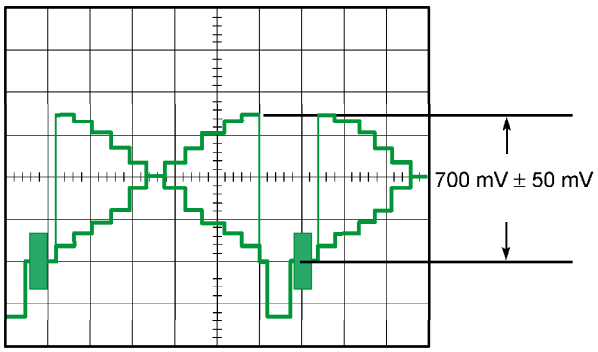


Fig. 5-7

- Press the **ENTER** key for next adjustment.

5.3. OB Confirmation (Don't Change Data)

- Press the **ENTER** key for next adjustment.

6. Burst Level Adjustment

- Repeat adjustment from steps **6.1** to **6.4** until Burst level, phase and Red vector phase are adjusted to proper position as shown in Fig.5-8, 5-9, 5-10 and Table 5-2.
- First, adjust the Burst Level and Phase according to following formula.
  DATA of **6.1** = DATA of **6.3**
  DATA of **6.2** = DATA of **6.4**
  Note the DATA at each adjustment step.
- Then adjust the Burst Level according to following formula.
  DATA of **6.1** → Current DATA – α
  DATA of **6.2** → Current DATA + α
  DATA of **6.3** → Current DATA – α
  DATA of **6.4** → Current DATA + α

6.1. Burst Level Adjustment

Test Point: CN5 (Video Output Connector) Video Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75 Ω to CN5.
- Set the Mode Switch of the Vectorscope to NTSC mode.
- Adjust data with the **ARROW** keys so that the Burst level and phase are adjusted to proper position as shown in Fig. 5-8 and Fig. 5-9.
- Note the DATA for step **6.3**.
- Press the **ENTER** key for next adjustment

6.2. Burst Level Adjustment

Test Point: CN5 (Video Output Connector) Video Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75 Ω to CN5.
- Adjust data with the **ARROW** keys so that the Burst level and phase are adjusted to proper position as shown in Fig. 5-8 and Fig. 5-9.
- Note the DATA for step **6.4**.
- Press the **ENTER** key for next adjustment.

6.3. Burst Level Adjustment

Test Point: CN5 (Video Output Connector) Video Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75 Ω to CN5.
- Adjust data with the **ARROW** keys so that the data becomes same value of adjustment step **6.1**.
- Press the **ENTER** key for next adjustment.

6.4. Burst Level Adjustment

Test Point: CN5 (Video Output Connector) Video Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75 Ω to CN5.
- Adjust data with the **ARROW** keys so that the data becomes same value of adjustment step **6.2**.

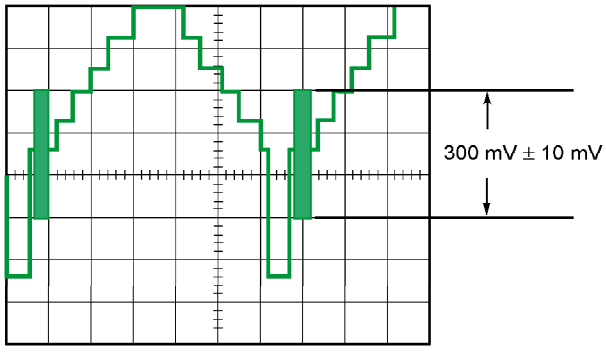


Fig. 5-8

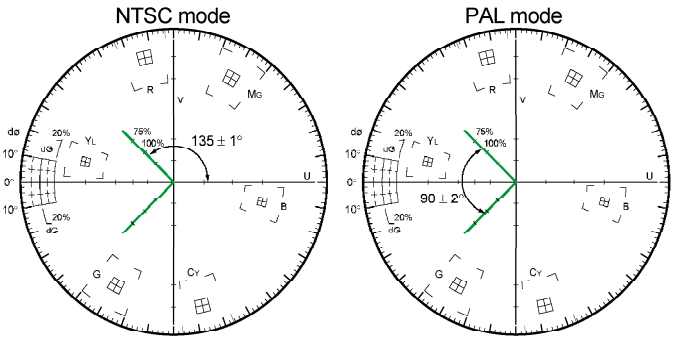


Fig. 5-9

- Press the **ENTER** key.
- Select the item "6.1 BURST LEVEL" with the **ROLL DOWN** key and press the **ENTER** key.

6.1. Burst Level Adjustment

Test Point: CN5 (Video Output Connector) Video Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75 Ω to CN5.
- Adjust data with the **ARROW** keys so that the data becomes –α from noted data.
- Press the **ENTER** key for next adjustment

6.2. Burst Level Adjustment

Test Point: CN5 (Video Output Connector) Video Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75 Ω to CN5.
- Adjust data with the **ARROW** keys so that the data becomes +α from noted data.
- Press the **ENTER** key for next adjustment.

6.3. Burst Level Adjustment

Test Point: CN5 (Video Output Connector) Video Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75 Ω to CN5.
- Adjust data with the **ARROW** keys so that the data becomes $-\alpha$ from noted data.
- Press the **ENTER** key for next adjustment.

6.4. Burst Level Adjustment

Test Point: CN5 (Video Output Connector) Video Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Logarithmic Gray Scale Chart.
- Connect the terminated Oscilloscope with 75 Ω to CN5.
- Adjust data with the **ARROW** keys so that the data becomes $+\alpha$ from noted data.
- Press the **ENTER** key and **ROLL DOWN** Key.
- Repeat adjustment steps **6.1** to **6.4** until Burst Level and Phase are adjusted to proper position as shown in Fig. 5-8 and 5-9.
- Press the **ENTER** key for next adjustment.

7.1. 3 200ºK R Gain Adjustment

Test Point: CN5 (Video Output Connector) Video Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Colour Chip Chart.
- Adjust data with the **ARROW** keys so that the Red gain becomes 200 % ± 5 %.
- Press the **ENTER** key for next adjustment.

Note: Chrominance phase and gain are adjusted to proper position as shown in Fig. 5-10 and Table 5-2.

7.2. 3 200ºK B Gain Adjustment

Test Point: CN5 (Video Output Connector) Video Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Colour Chip Chart.
- Adjust data with the **ARROW** keys so that the Yellow gain becomes 80 % ± 5 %.
- Press the **ENTER** key for next adjustment.

Note: Chrominance phase and gain are adjusted to proper position as shown in Fig. 5-10 and Table 5-2.

7.3. 3 200ºK Phase Adjustment

Test Point: CN5 (Video Output Connector) Video Board

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the Colour Chip Chart.
- Adjust data with the **ARROW** keys so that the Red vector phase becomes 108° ± 2°.
- Repeat adjustment steps **7.1.** to **7.3.** until both chrominance phase and gain are adjusted to proper position as shown in Fig. 5-10 and Table 5-2.

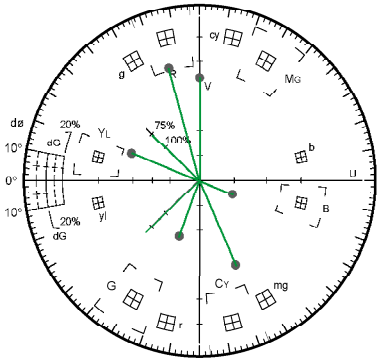


Fig. 5-10

	Red	Yellow
Phase	108° ± 2°	160° ± 5°
Gain	200 % ± 5 %	80 % ± 5 %

Table 5-2

- Press the **ENTER** key for next adjustment.

7.5. Color Center Point Adjustment (Don't Change Data)

- Press the **ENTER** key for next adjustment.

8.1. ATW Confirmation (Don't Change Data)

- Press the **ENTER** key for next adjustment.

8.2. High Light Chroma Clip Adjustment

Test Point: CN5 (Video Output Connector)Video Board

Adjust: RAM (038)

- Keep the Colour Temperature at 3 200ºK.
- Aim the Camera at the White Chart or White Paper.
- Connect the terminated Oscilloscope with 75 Ω to CN5.
- Adjust data with the **ARROW** keys so that the false chrominance level becomes minimum as shown in Fig. 5-11.

Note: The Data of 038 should be adjusted from FF, the first minimum point of the false chrominance signal is as adjusting point.

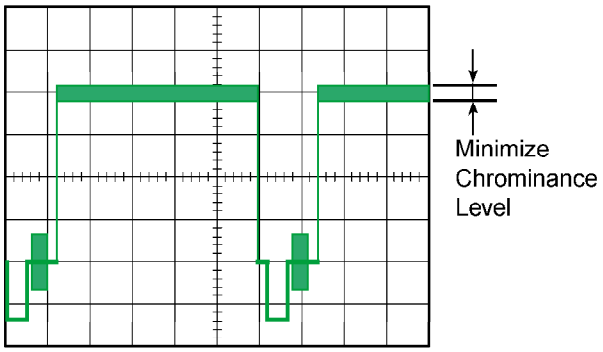
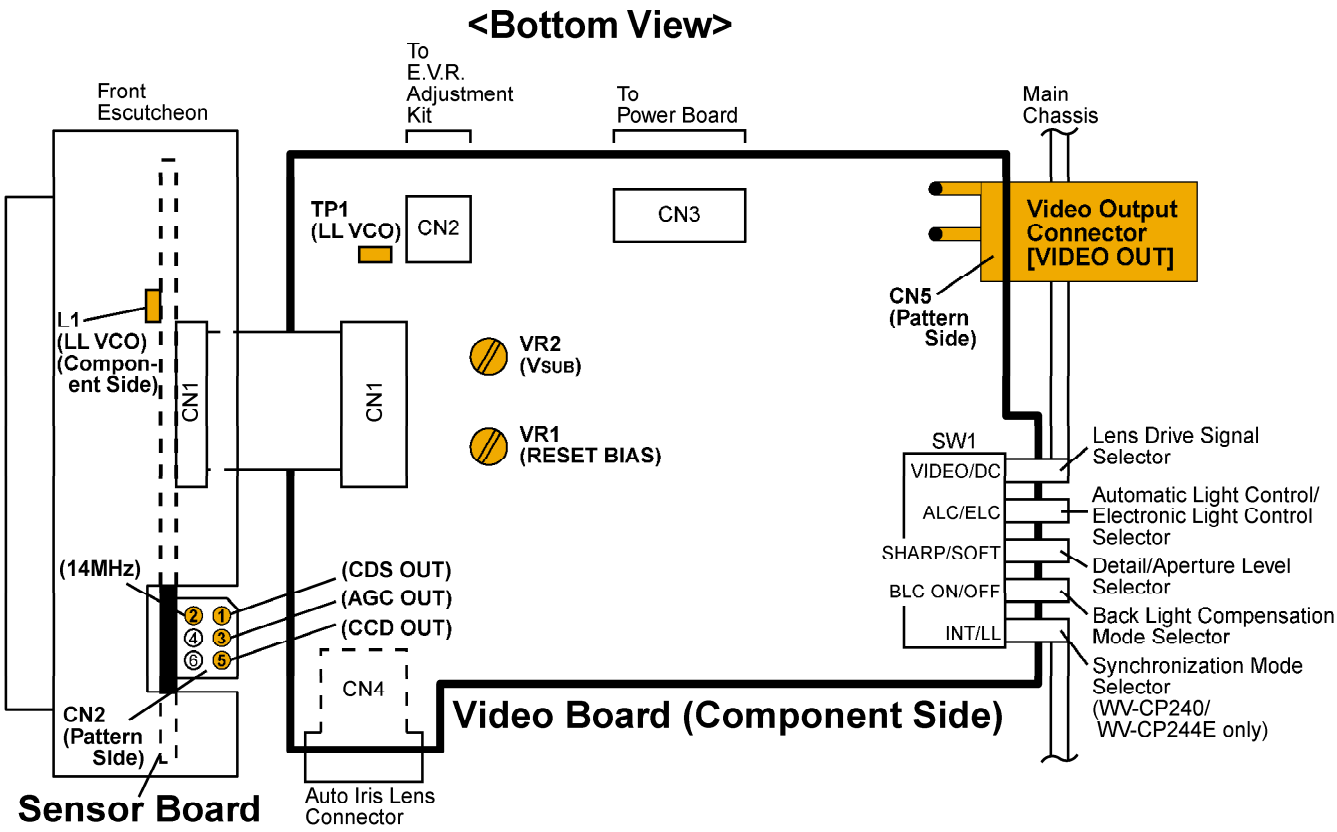


Fig. 5-11

- After completing of the adjustment, press the **QUIT (F3)** key, then the menu as shown in "<SAVE CAMERA DATA TO FILE : ***. EVR? Y/N> will be displayed.
- Press the **N** key, and then press the **ENTER** key to finish of this adjustment procedure.

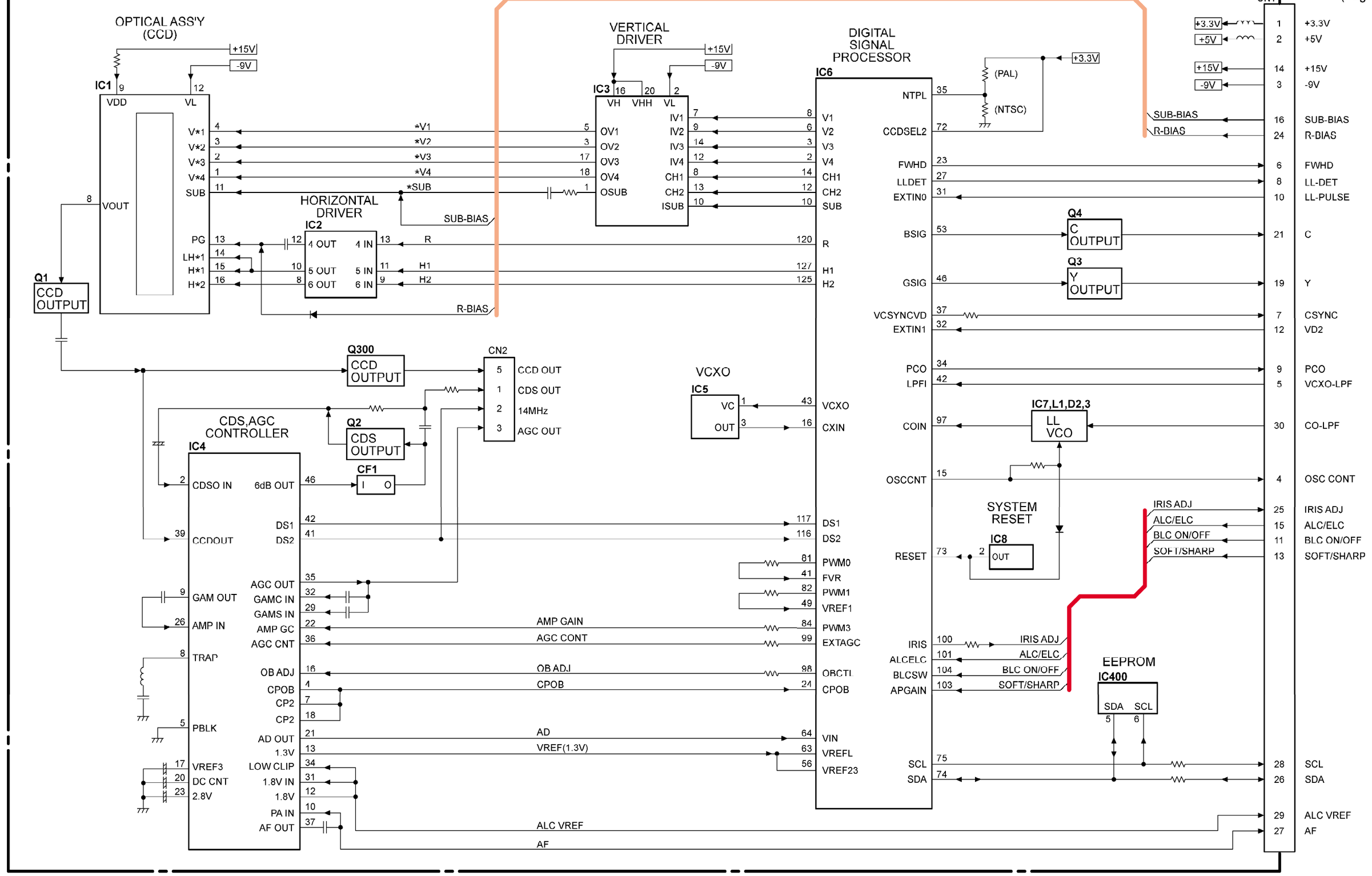
LOCATION OF TEST POINTS AND ADJUSTING CONTROLS



BLOCK DIAGRAM OF SENSOR BOARD

SENSOR BOARD

Note: IC1 is not included in Sensor Board Ass'y.



BLOCK DIAGRAM OF VIDEO BOARD / POWER BOARD

VIDEO BOARD

TO SENSOR BOARD CN1 (Page 11)

CN1

+3.3V 30 · +5V 29 · +15V 17 · -9V 28 · SUB-BIAS 15 · R-BIAS 7 · FWHD 25 · LL-DET 23 · LL-PULSE 21 · C 10 · Y 12 · CSYNC 24 · VD2 19 · PCO 22 · VCXO-LPF 26 · CO-LPF 1 · OSC CONT 27 · IRIS ADJ 6 · ALC/ELC 16 · BLC ON/OFF 20 · SOFT/SHARP 18 · SCL 3 · SDA 5 · ALC VREF 2 · AF 4

+3.3V · +5V

Q10-12,D2-8 DC-DC BOOSTER (+15V, -9V, +25V) ← +9V

Q1 VSUB OUTPUT

VR2 VSUB

VR1 RESET BIAS

FWHD

CN3: 2 LL-DET · 1 LL-PULSE · 4 +3.3V · 5 +9V

IC2 (2/3) · IC2 (1/3)

IC5 +5V REG. (+5V, +9V)

IC2 (3/3) ← LL/INT

B.P.F. · CF1

Q16 C OUTPUT

Q13 VIDEO MIX

Q14,15,17-19 VIDEO OUTPUT

CN5 VIDEO OUTPUT CONNECTOR — CN5 VIDEO OUT

VD2

Q3,4 ALC DRIVER

CN4 AUTO IRIS LENS CONNECTOR — GND · DRIVE · DAMPER · VREF

R15,16,C10,11 VD2 L.P.F.

TP1 (LL VCO)

Q2,R12-14,C8,9 LL L.P.F.

LL

IC3: 14 XC · 15 SELECTOR · 13 1X · 12 0X · 11 A · 10 B · YC · 1Y 1 VIDEO · 0Y 2 DC

IC4 (1/4) · IC4 (4/4) · IC4 (2/4) · IC4 (3/4)

FWHD

Q6,7 VREF (DC) CONTROLLER (+9V)

Q5 VREF CONTROLLER

Q8 ALC/ELC OUTPUT

Q9 BLC ON/OFF OUTPUT

SW1: 6 VIDEO · 7 ALC · 8 SHARP · 9 BLC ON · 10 INT · 5 DC · 4 ELC · 3 SOFT · 2 OFF · 1 LL

+3.3V

WV-CP240/WV-CP244E ONLY

SW1
1-10: SYNCHRONIZATION MODE SELECTOR (WV-CP240/WV-CP244E ONLY)
2-9: BACK LIGHT COMPENSATION MODE SELECTOR
3-8: DETAIL/APERTURE LEVEL SELECTOR
4-7: AUTOMATIC LIGHT CONTROL/ELECTRONIC LIGHT CONTROL SELECTOR
5-6: LENS DRIVE SIGNAL SELECTOR

CN2: 2 SCL · 3 SDA — TO E.V.R. ADJ. KIT

LL/INT · ALC VREF · AF

POWER BOARD (WV-CP240)

E3: LL-DET 2 · LL-PULSE 1 · +3.3V 4 · +9V 5

IC1,Q1-4,D1, D3-8,21-24,T1 SWITCHING REGULATOR

F1 630mA

AC IN CN1: 1 L · 2 N

(FRO POW COR

POWER BOARD (WV-CP242E

E1: LL-DET (NC) 2 · LL-PULSE (GND) 1 · +3.3V 4 · +9V 5

IC2 +3.3V REG.

IC1 +9V REG.

F1 3.15A

DC 12V IN CN1: 2 + · 1 G

CN1 DC12V INPUT TERMIN

POWER BOARD (WV-CP244E

E3: LL-DET 2 · LL-PULSE 1 · +3.3V 4 · +9V 5

IC1,Q1-4,D1, D3-7,21-24,T1 SWITCHING REGULATOR

F1 2.5A

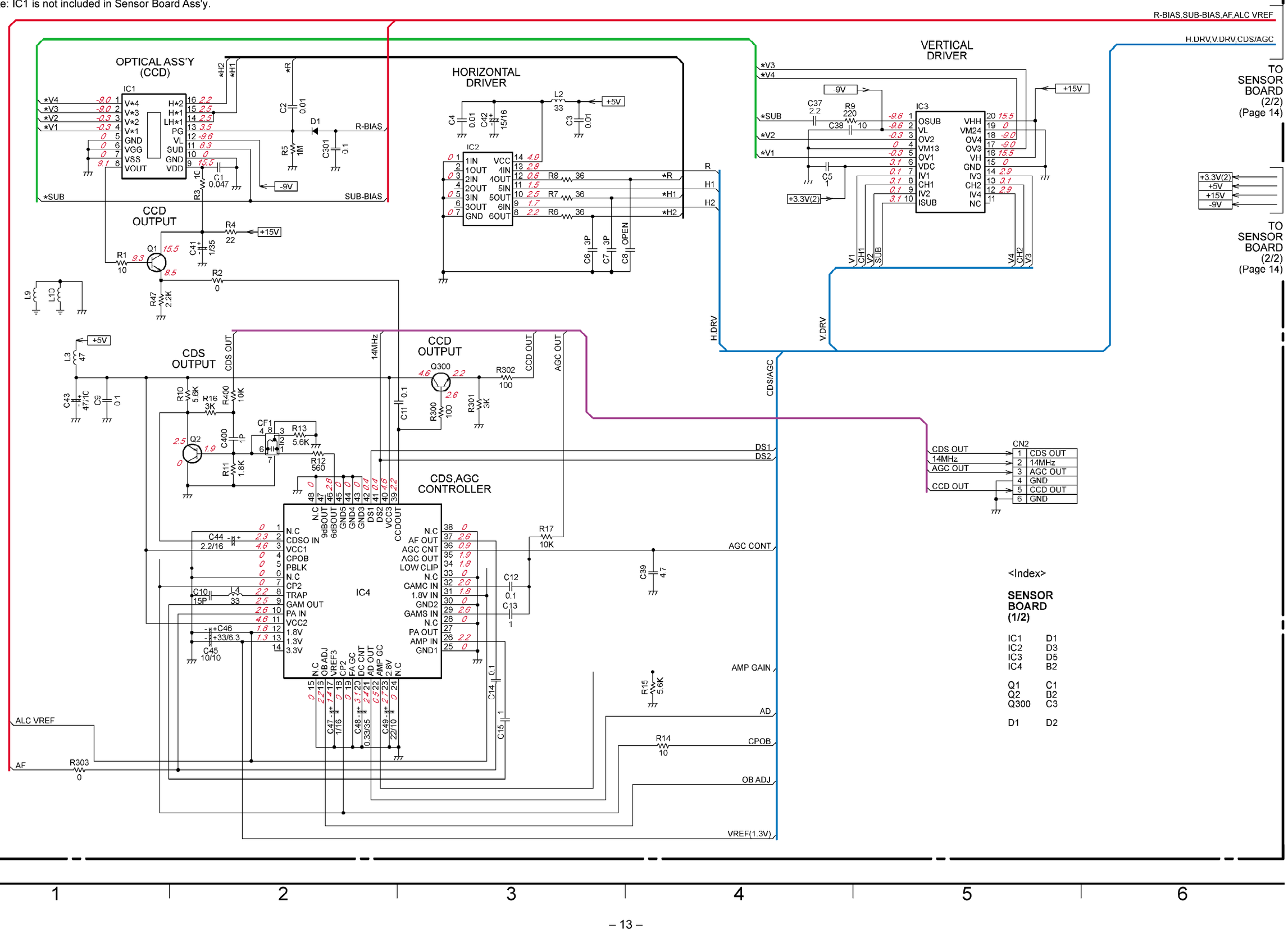
AC 24V IN CN1: 1 L · 2 N

CN1 AC24V INPUT TERMIN

SCHEMATIC DIAGRAM OF SENSOR BOARD (1/2)

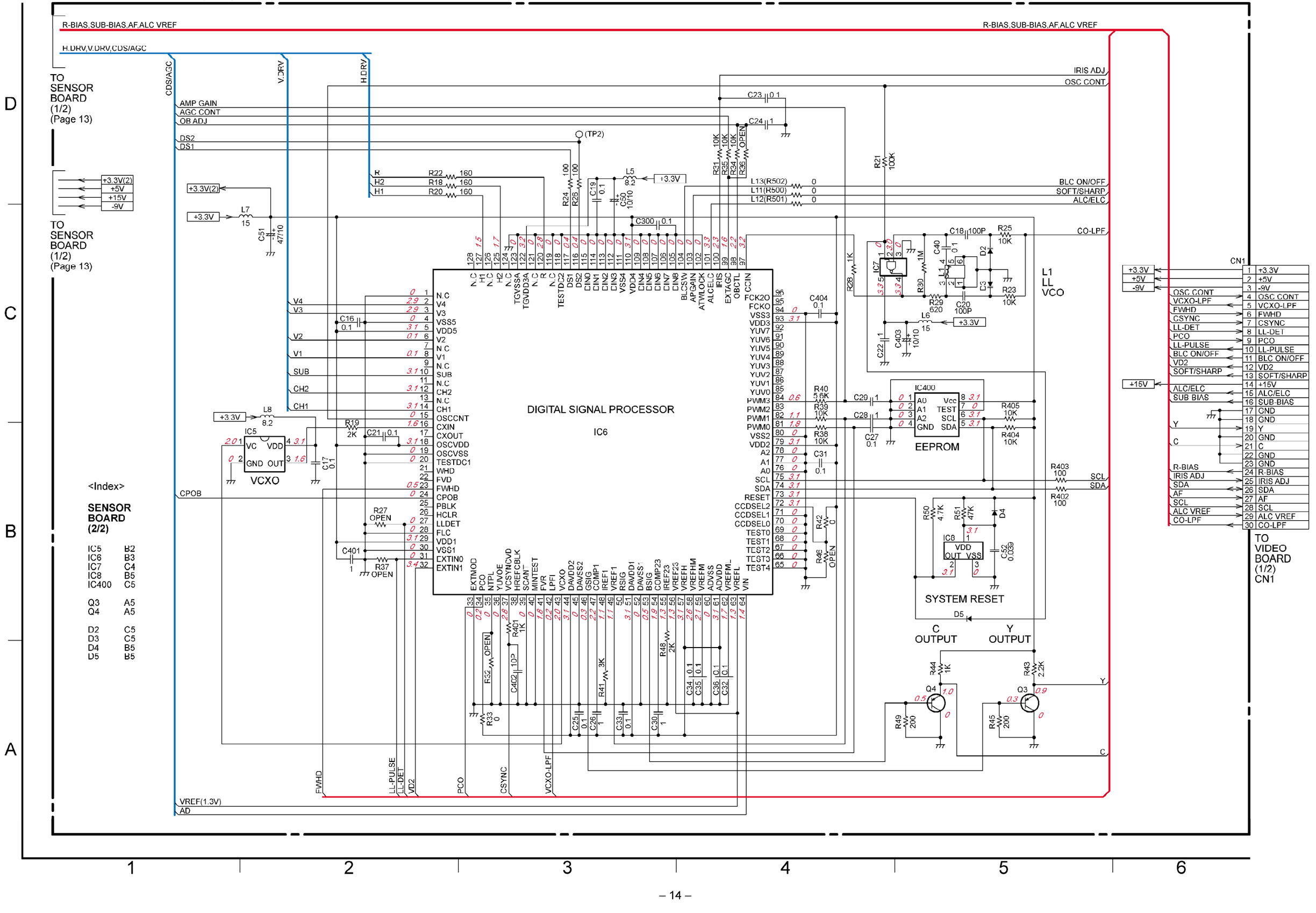
SENSOR BOARD(1/2)

Note: IC1 is not included in Sensor Board Ass'y.



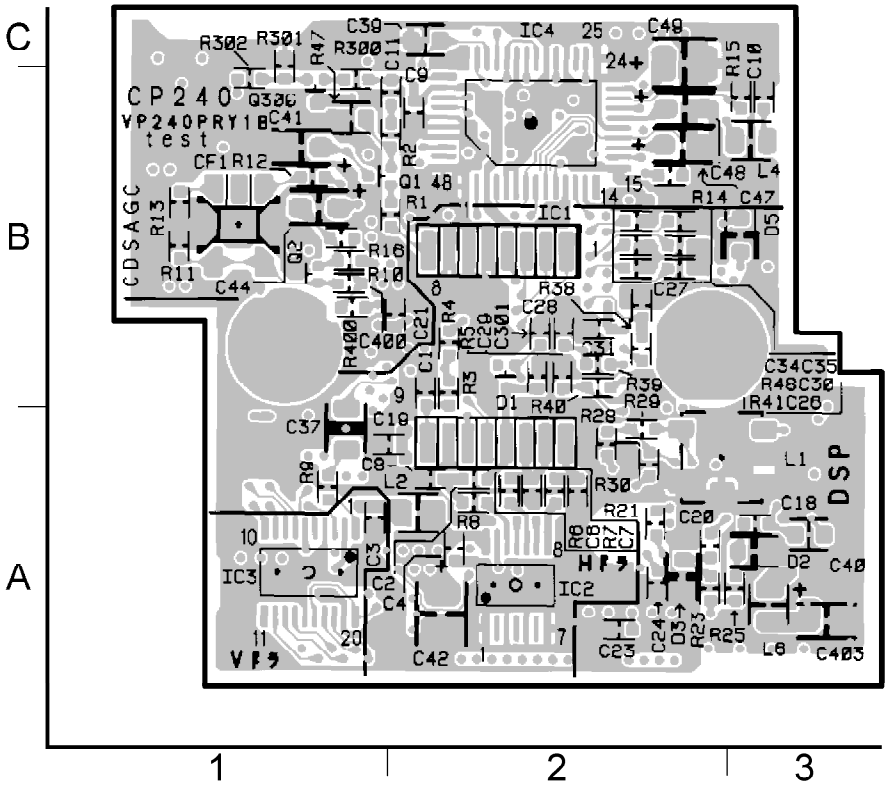
SCHEMATIC DIAGRAM OF SENSOR BOARD (2/2)

SENSOR BOARD(2/2)



CONDUCTOR VIEW OF SENSOR BOARD

SENSOR BOARD (COMPONENT SIDE)

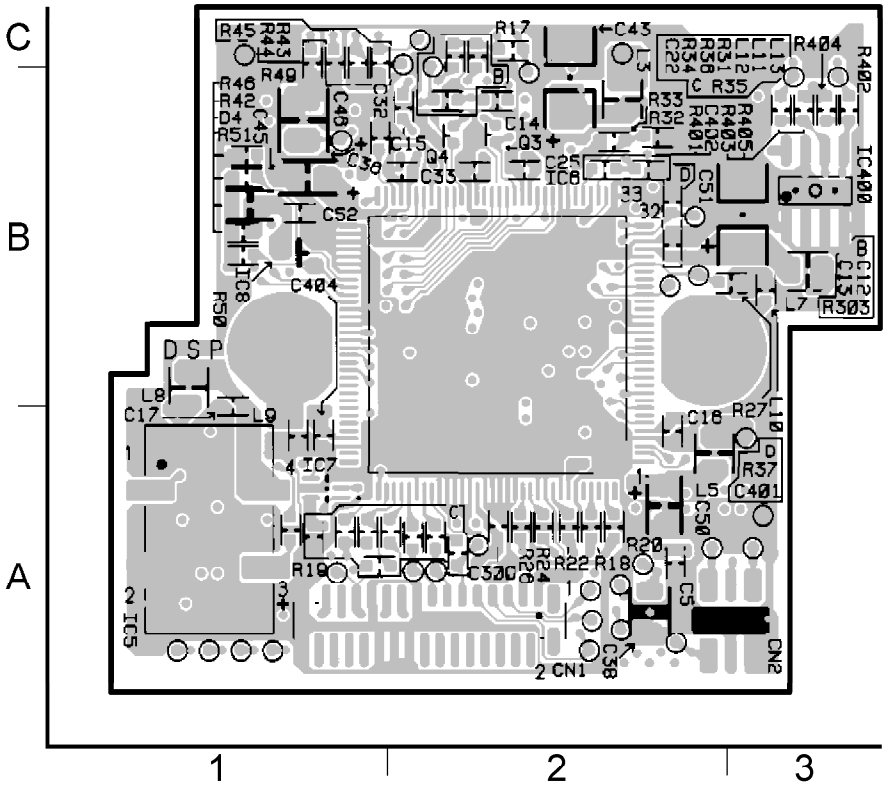


<Index>

SENSOR BOARD (COMPONENT SIDE)

IC1	B2
IC2	A2
IC3	A1
IC4	C2
Q1	B2
Q2	B1
Q300	B1
D1	B2
D2	A3
D3	A2
D5	B3

SENSOR BOARD (PATTERN SIDE)

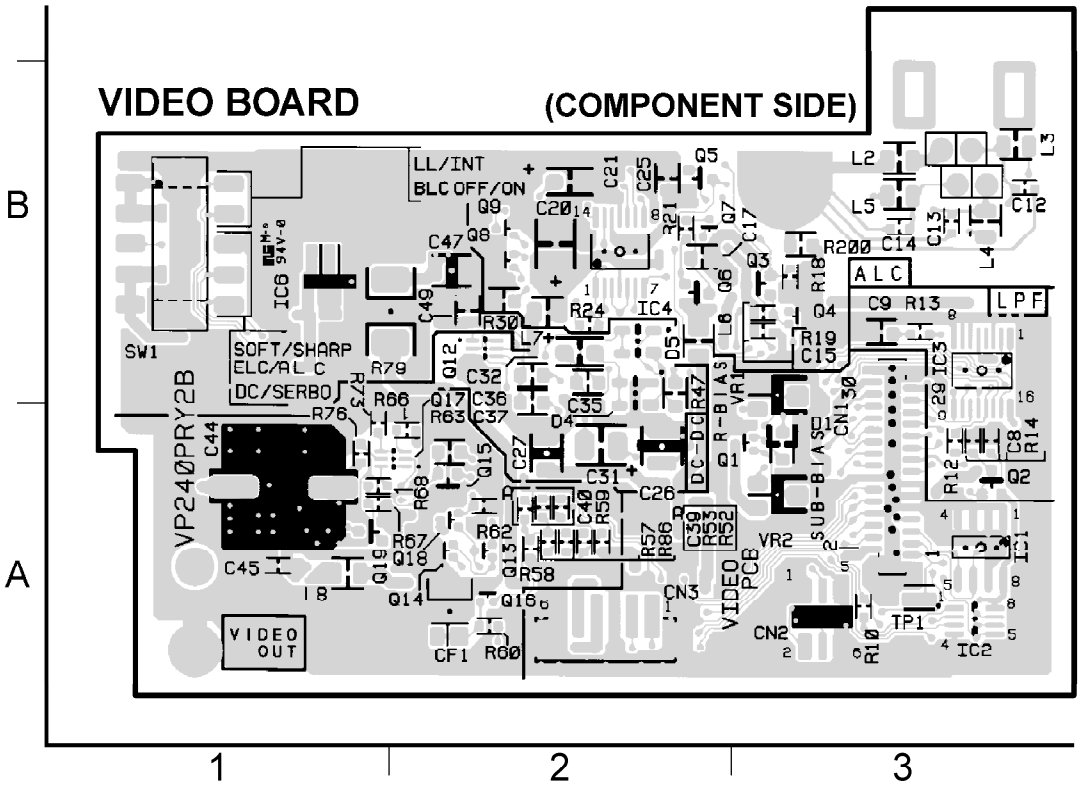


<Index>

SENSOR BOARD (PATTERN SIDE)

IC5	A1
IC6	B2
IC7	A1
IC8	B1
IC400	B3
Q3	B2
Q4	B2
D4	B1

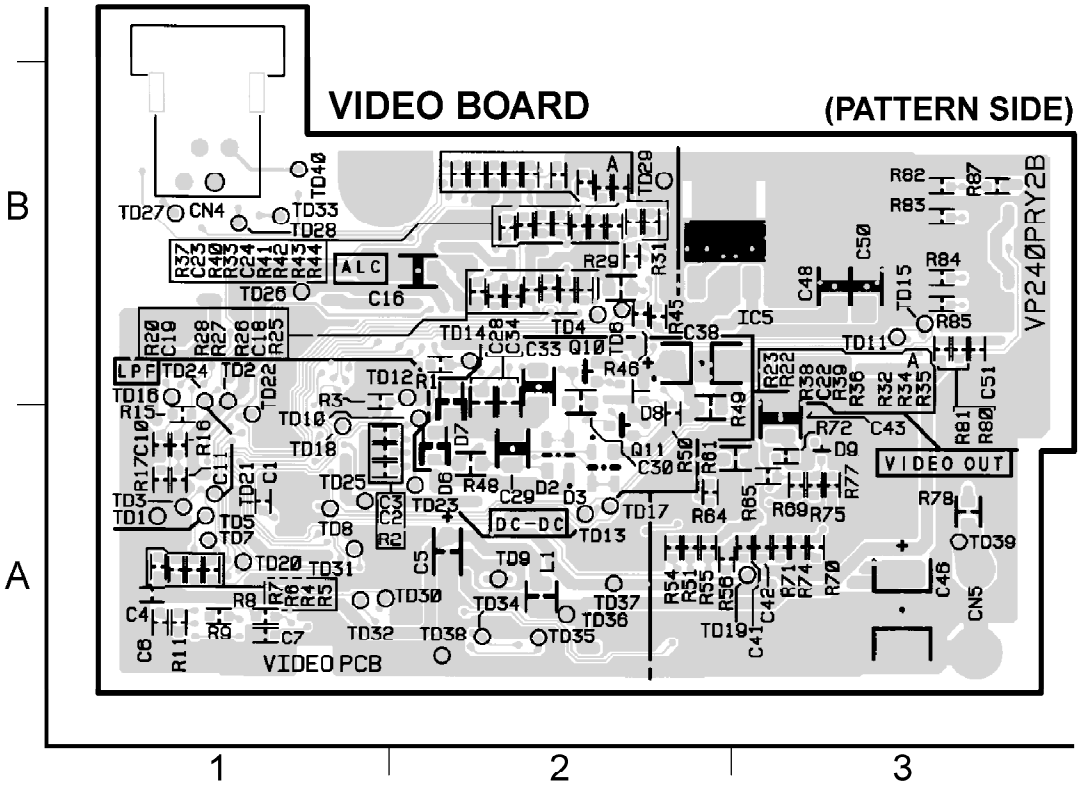
CONDUCTOR VIEW OF VIDEO BOARD



<Index>

VIDEO BOARD (COMPONENT SIDE)

IC2	A3
IC3	B3
IC4	B2
Q1	A3
Q2	A3
Q3	B3
Q4	B3
Q5	B2
Q6	B2
Q7	B2
Q8	B2
Q9	B2
Q12	B2
Q13	A2
Q14	A2
Q15	A2
Q16	A2
Q17	A2
Q18	A2
Q19	A1
D1	A3
D4	A2
D5	B2



<Index>

VIDEO BOARD (PATTERN SIDE)

IC5	B3
Q10	B2
Q11	A2
D2	A2
D3	A2
D6	A2
D7	A2
D8	A2
D9	A3

SCHEMATIC DIAGRAM OF VIDEO BOARD (1/2)

VIDEO BOARD(1/2)

FWHD,ALC VREF,AF,IRIS ADJ,OSC CONT,PCO,VCXO-LPF,CO-LPF,
ALC/ELC,BLC ON/OFF,SOFT/SHARP,LL-DET,LL-PULSE

FWHD,ALC VREF,AF,IRIS ADJ,OSC CONT,PCO,VCXO-LPF,CO-
ALC/ELC,BLC ON/OFF,SOFT/SHARP,LL-DET,LL-PULSE

CN1

+3.3V	30	+3.3V
+5V	29	+5V
-9V	28	-9V
OSC CONT	27	OSC CONT
VCXO-LPF	26	VCXO-LPF
FWHD	25	FWHD
CSYNC	24	CSYNC
LL-DET	23	LL-DET
PCO	22	PCO
LL-PULSE	21	LL-PULSE
BLC ON/OFF	20	BLC ON/OFF
VD2	19	VD2
SOFT/SHARP	18	SOFT/SHARP
+15V	17	+15V
ALC/ELC	16	ALC/ELC
SUB-BIAS	15	SUB-BIAS
GND	14	
GND	13	
Y	12	Y
GND	11	
C	10	C
GND	9	
GND	8	
R-BIAS	7	R BIAS
IRIS ADJ	6	IRIS ADJ
SDA	5	SDA
AF	4	AF
SCL	3	SCL
ALC VREF	2	ALC VREF
CO-LPF	1	CO-LPF

TO SENOR BOARD (2/2) CN1

VSUB OUTPUT

VR2 VSUB

VR1 RESET BIAS

DC-DC BOOSTER

+25V

+15V

-9V

+9V

SUB-BIAS

R BIAS

FWHD

10 µs/DIV, 1V/DIV

10 µs/DIV, 0.5V/DIV

10 µs/DIV, 0.5V/DIV

10 µs/DIV, 50mV/DIV

10 µs/DIV, 0.1V/DIV

10 µs/DIV, 1V/DIV

VIDEO MIX

C OUTPUT

VIDEO OUTPUT

+3.3V(1)

+9V

C

Y

CSYNC

VD2

CN5 VIDEO OUTPUT CONNECTOR

CN5 VIDEO OUT

OPEN

IC1 (A0, A1, A2, GND, Vcc, TEST, SCL, SDA)

SCL

SDA

CN2

1	GND
2	SCL
3	SDA
4	+3.3V
5	GND
6	GND

TO E.V.R. ADJ. KIT

<Index>

VIDEO BOARD (1/2)

Q1	D2
Q10	D4
Q11	C4
Q12	C5
Q13	B3
Q14	B3
Q15	B3
Q16	B2
Q17	B4
Q18	B3
Q19	B4
D1	C2
D2	D4
D3	D4
D4	C4
D5	C4
D6	D3
D7	C3
D8	C4
D9	B4

SCHEMATIC DIAGRAM OF VIDEO BOARD (2/2)

VIDEO BOARD(2/2)

FWHD,ALC VREF,AF,IRIS ADJ,OSC CONT,PCO,VCXO-LPF,CO-LPF,
ALC/ELC,BLC ON/OFF,SOFT/SHARP,LL-DET,LL-PULSE

TO VIDEO BOARD (1/2) (Page 17)

+9V
+5V
+3.3V
+3.3V(1)

TO VIDEO BOARD (1/2) (Page 17)

FWHD
ALC VREF
AF
IRIS ADJ
OSC CONT
PCO
VCXO-LPF
CO-LPF
VIDEO
DC
VIDEO/DC
LL-PULSE
LL/INT
LL-DET
SOFT/SHARP
BLC ON/OFF
ALC/ELC

ALC/ELC OUTPUT
BLC ON/OFF OUTPUT

ALC DRIVER
VREF CONTROLLER
SELECTOR
VD2 L.P.F.
LL L.P.F.
CN4 AUTO IRIS LENS CONNECTOR
+5V REGULATOR

TP1 (LL VCO)

CN3
1 LL-PULSE
2 LL-DET
3 GND
4 +3.3V
5 +9V
6 GND

TO POWER BOARD E3 (WV-CP240/ WV-CP244E) E1 (WV-CP242E)

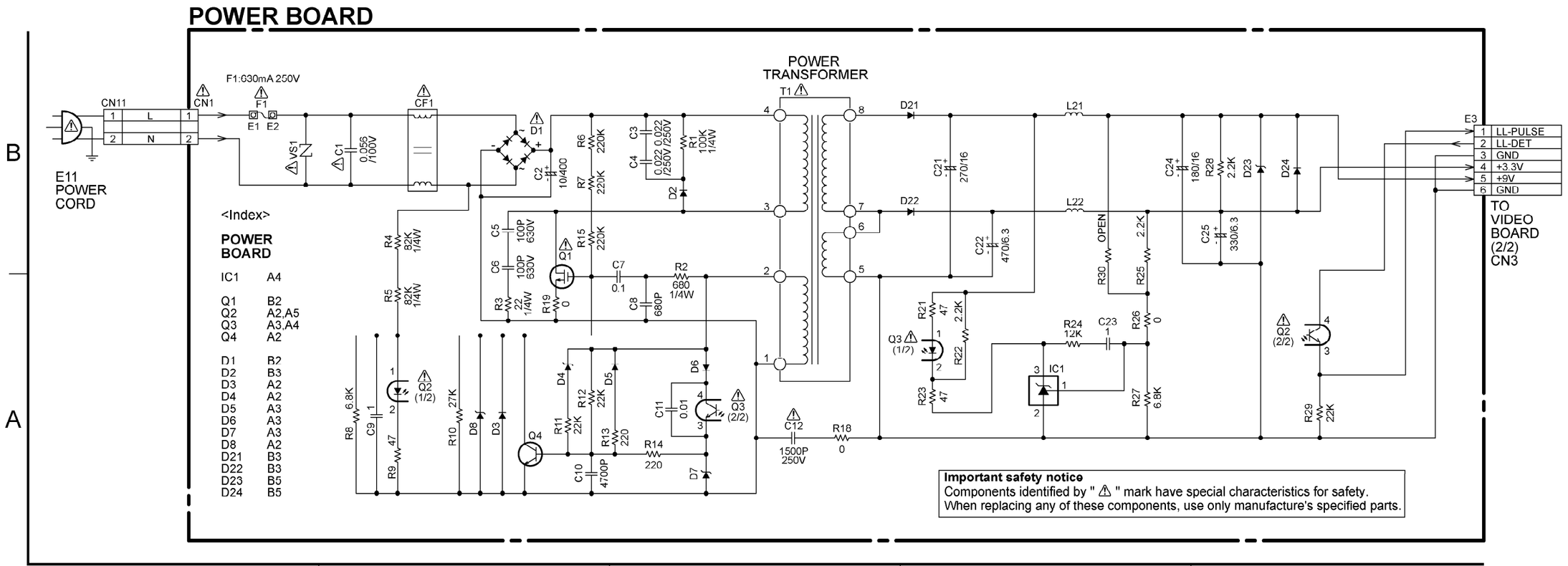
<Index>

VIDEO BOARD (2/2)

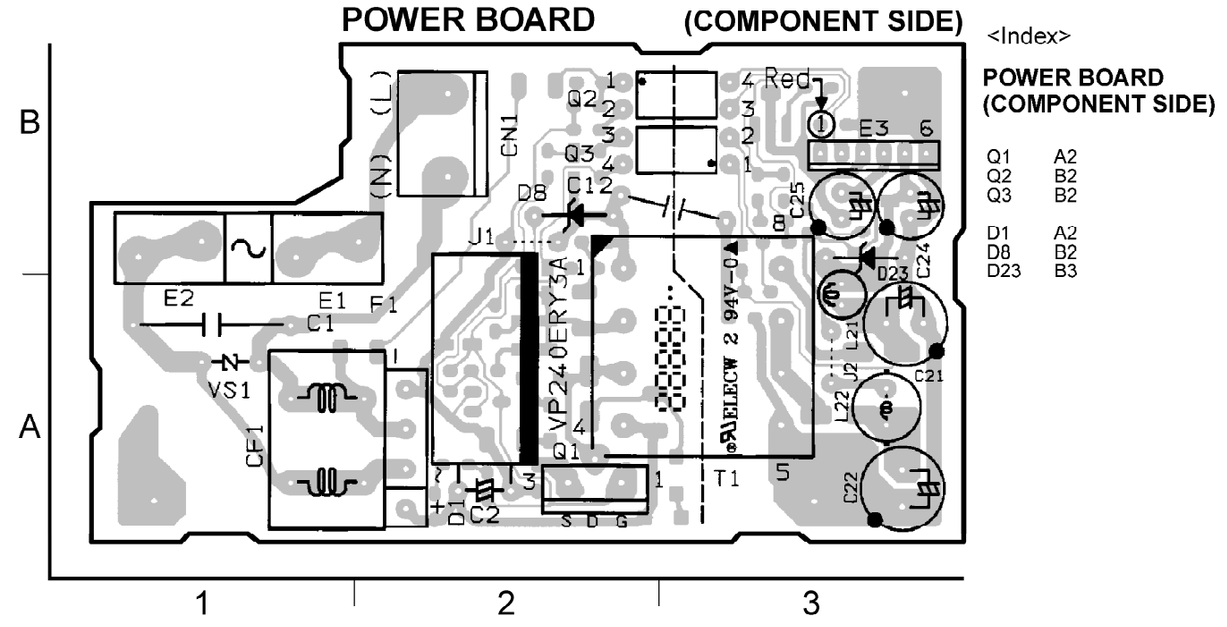
IC2	B4
IC3	C4
IC4	C3
IC5	A5
Q2	C5
Q3	D4
Q4	D4
Q5	C4
Q6	C4
Q7	C4
Q8	C2
Q9	C2

SW1
1-10: SYNCHRONIZATION MODE SELECTOR (WV-CP240/WV-CP244E ONLY)
2-9: BACK LIGHT COMPENSATION MODE SELECTOR
3-8: DETAIL/APERTURE LEVEL SELECTOR
4-7: AUTOMATIC LIGHT CONTROL/ ELECTRONIC LIGHT CONTROL SELECTOR
5-6: LENS DRIVE SIGNAL SELECTOR

SCHEMATIC DIAGRAM OF POWER BOARD (WV-CP240)



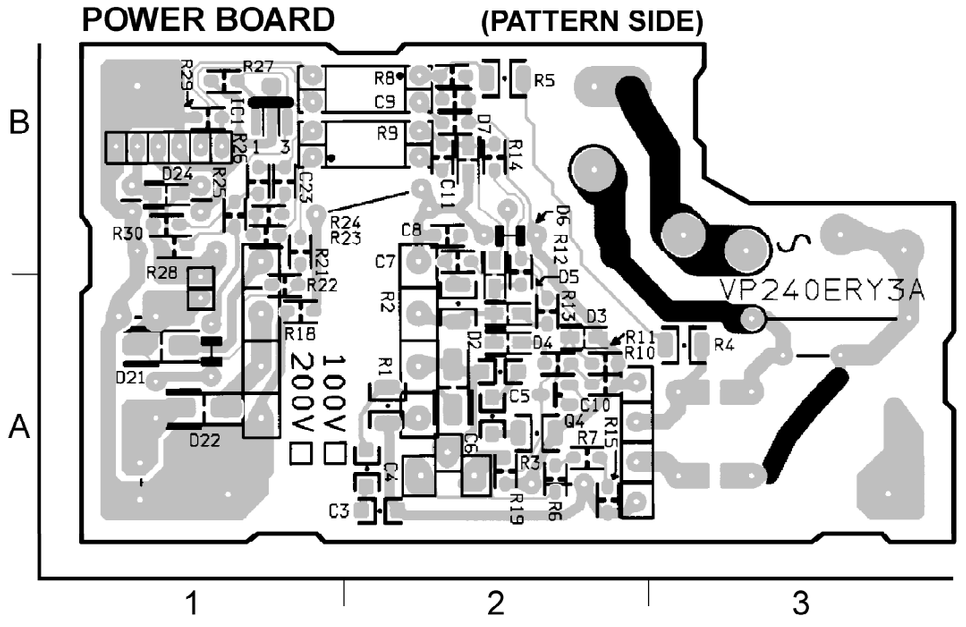
CONDUCTOR VIEW OF POWER BOARD (WV-CP240)



<Index>

POWER BOARD (COMPONENT SIDE)

Q1	A2
Q2	B2
Q3	B2
D1	A2
D8	B2
D23	B3



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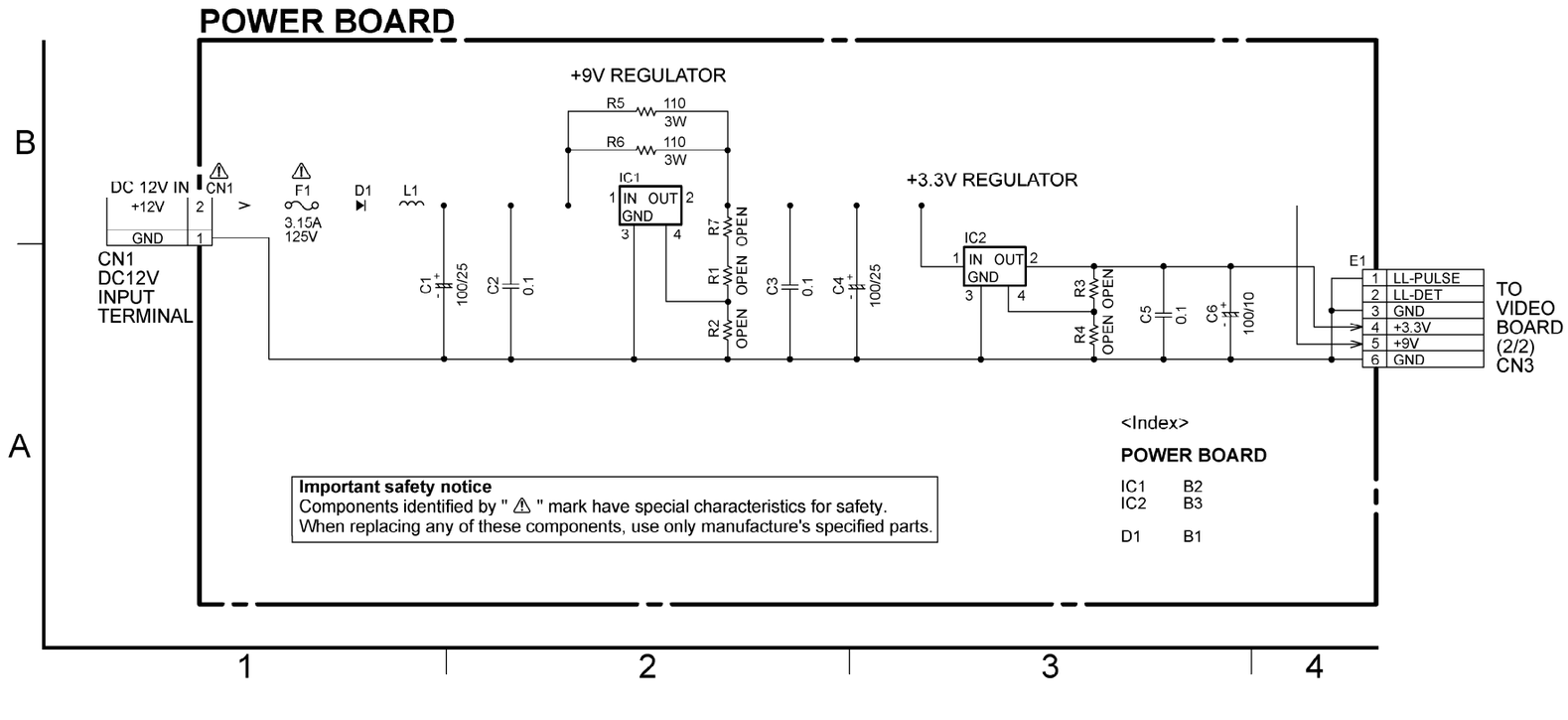
POWER BOARD (PATTERN S

IC1	B1
Q4	A2
D2	A2
D3	A2
D4	A2
D5	A2
D6	B2
D7	B2
D21	A1
D22	A1
D24	B1

SCHEMATIC DIAGRAM OF POWER BOARD (WV-CP242E)



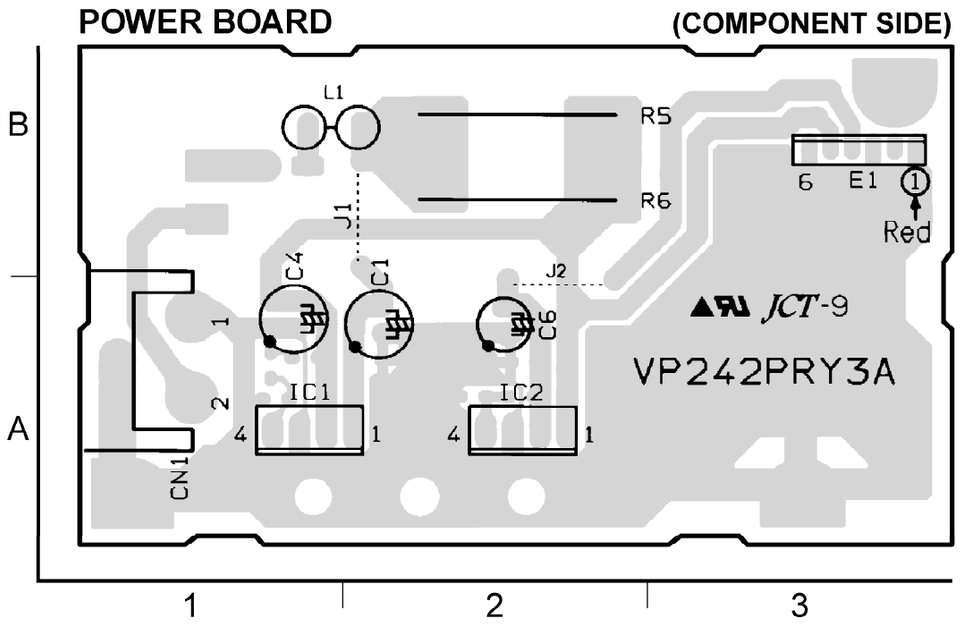
Important safety notice
Components identified by " ⚠ " mark have special characteristics for safety.
When replacing any of these components, use only manufacture's specified parts.

<Index>

POWER BOARD

IC1	B2
IC2	B3
D1	B1

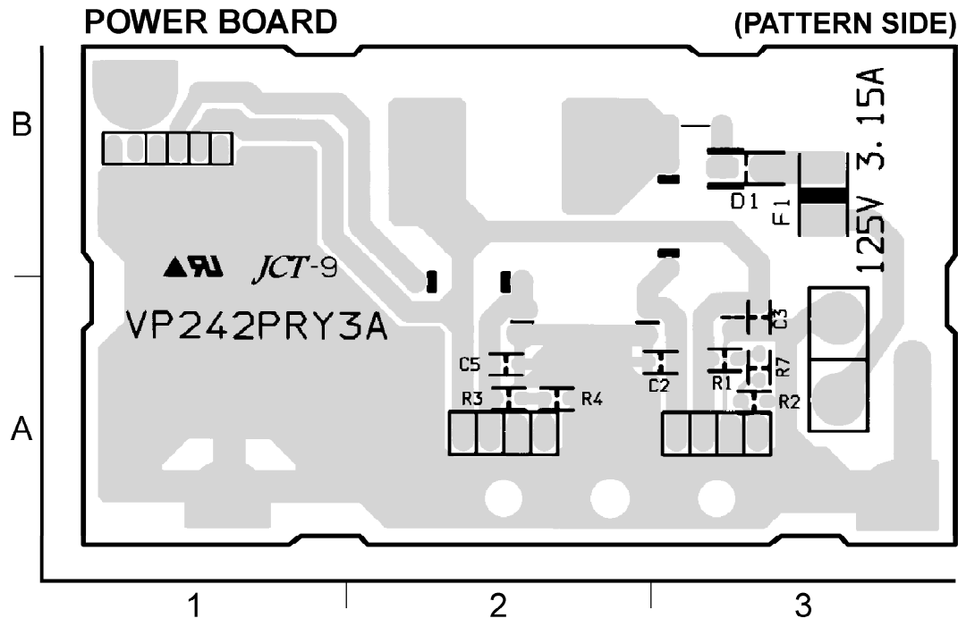
CONDUCTOR VIEW OF POWER BOARD (WV-CP242E)



<Index>

POWER BOARD
(COMPONENT SIDE)

IC1	A1
IC2	A2

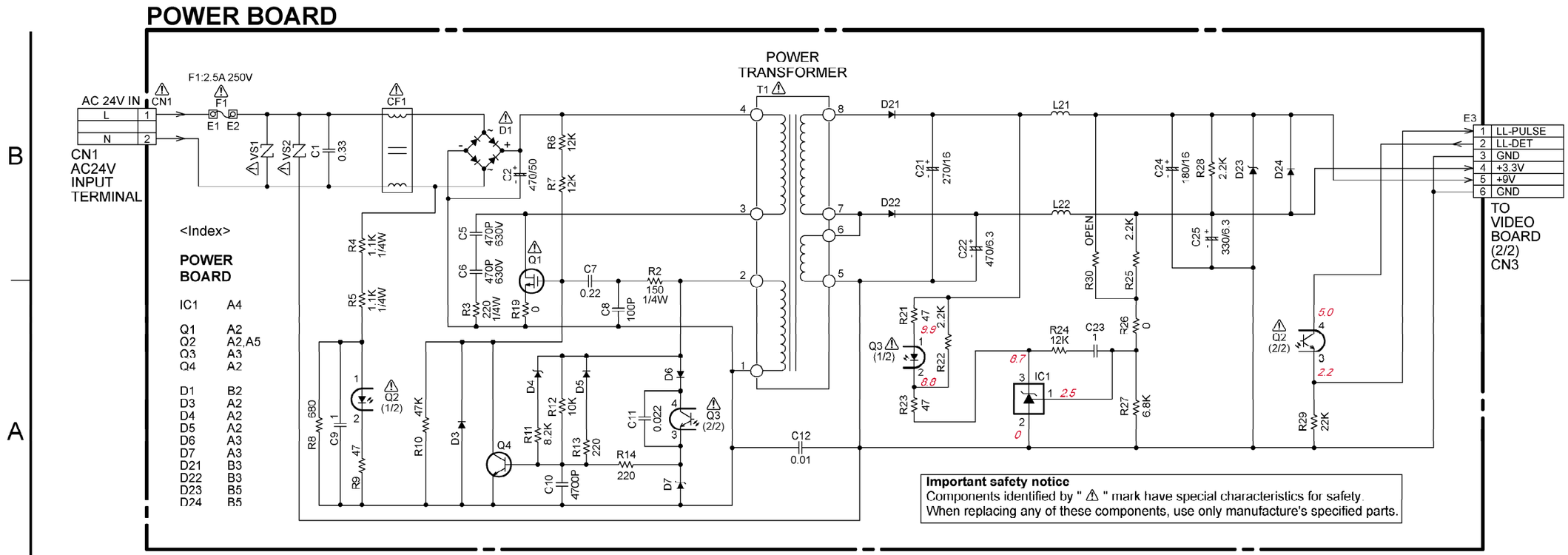


<Index>

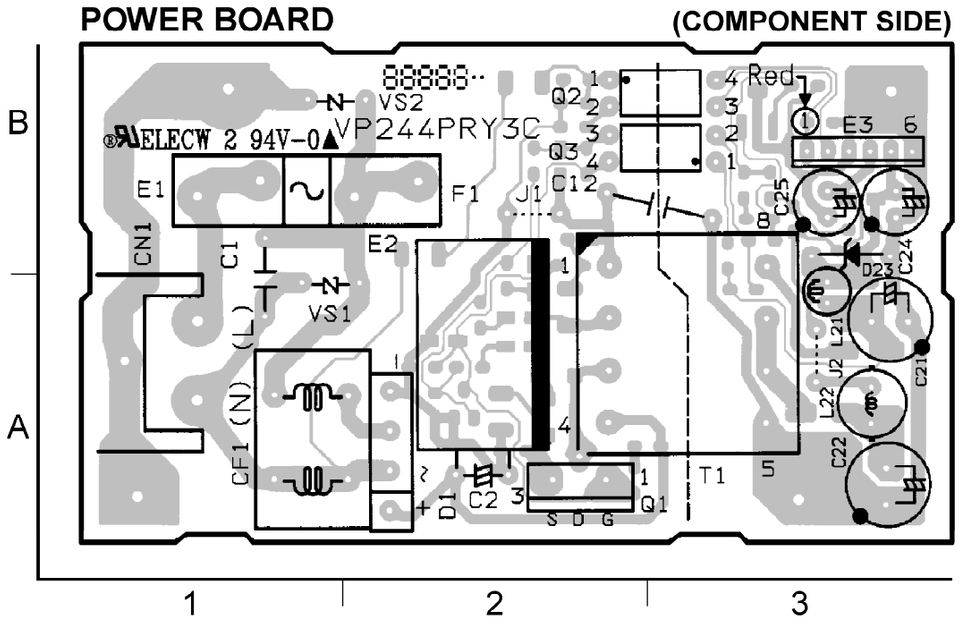
POWER BOAI
(PATTERN SI

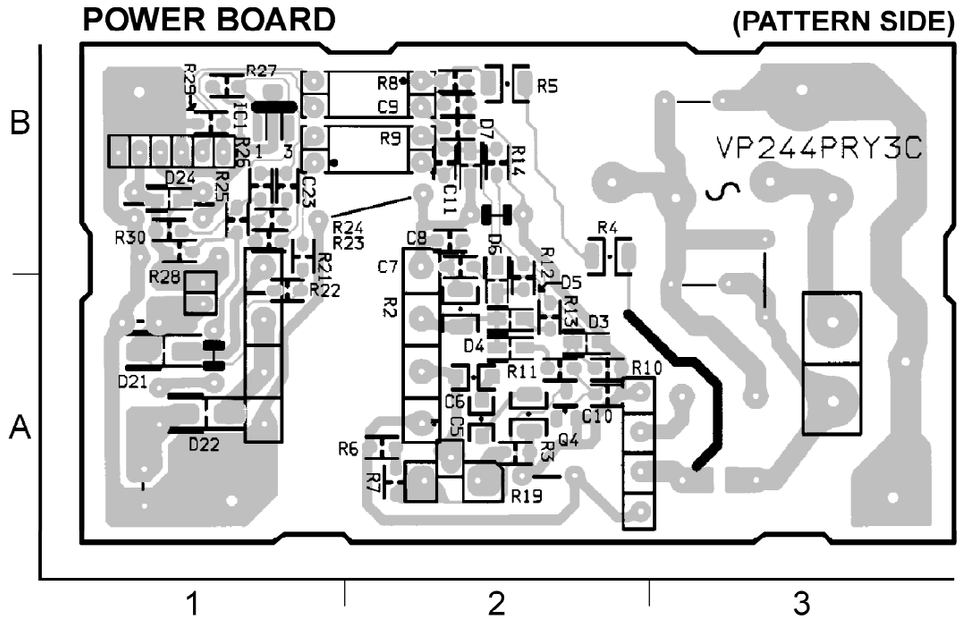
D1	B3

SCHEMATIC DIAGRAM OF POWER BOARD (WV-CP244E)

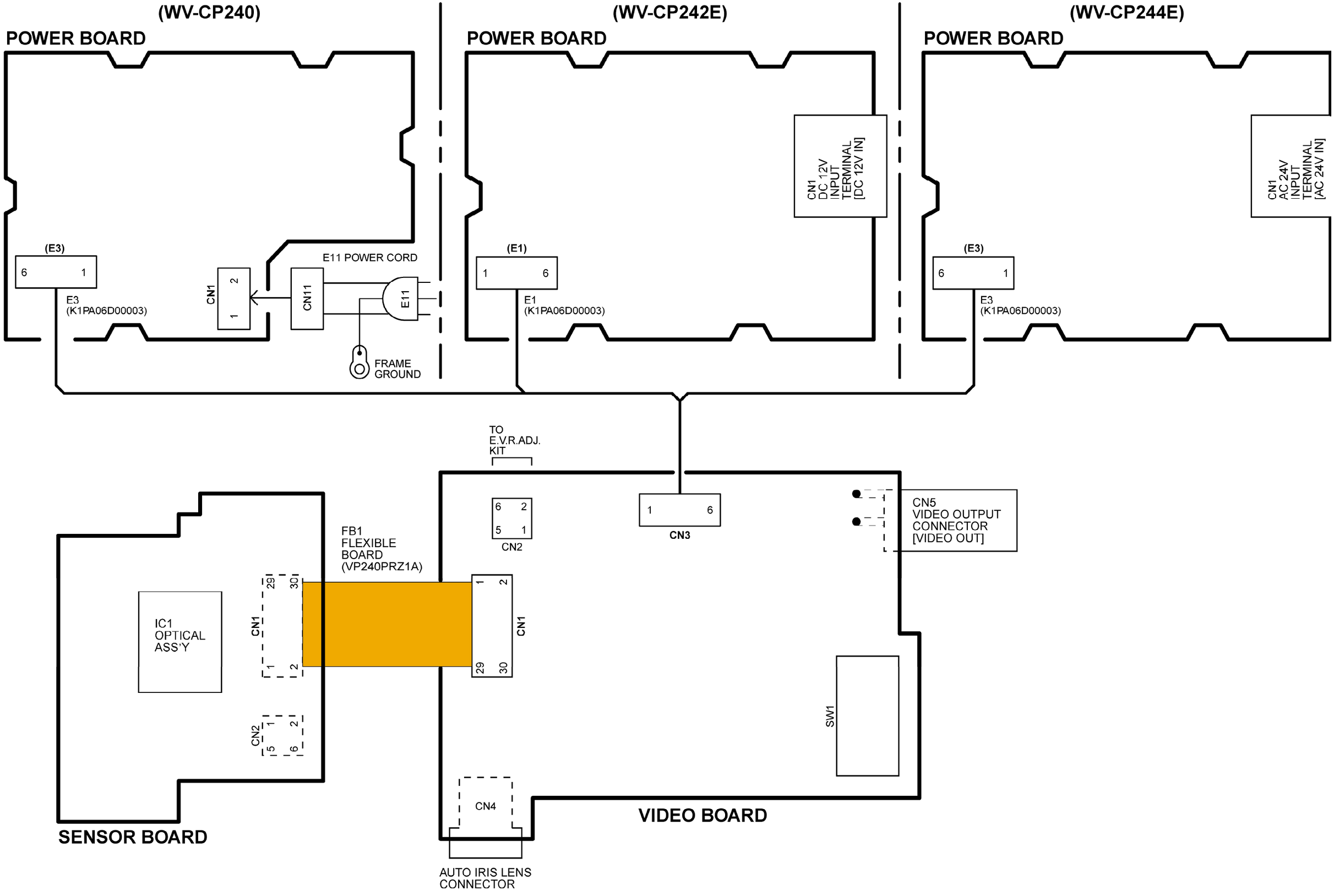


CONDUCTOR VIEW OF POWER BOARD (WV-CP244E)





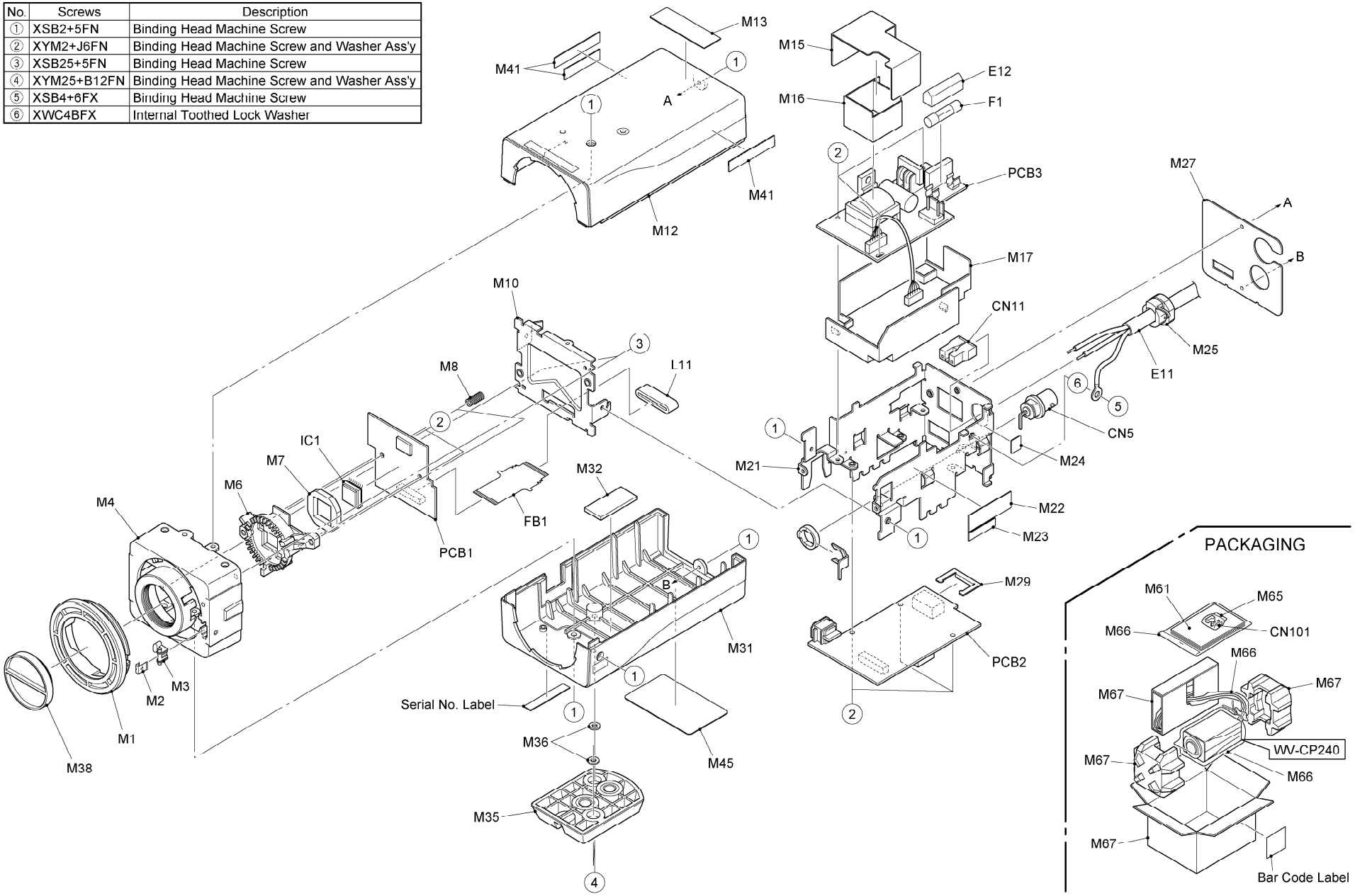
WIRING DIAGRAM



EXPLODED VIEW OF WV-CP240

○Numbers show screws and washers.

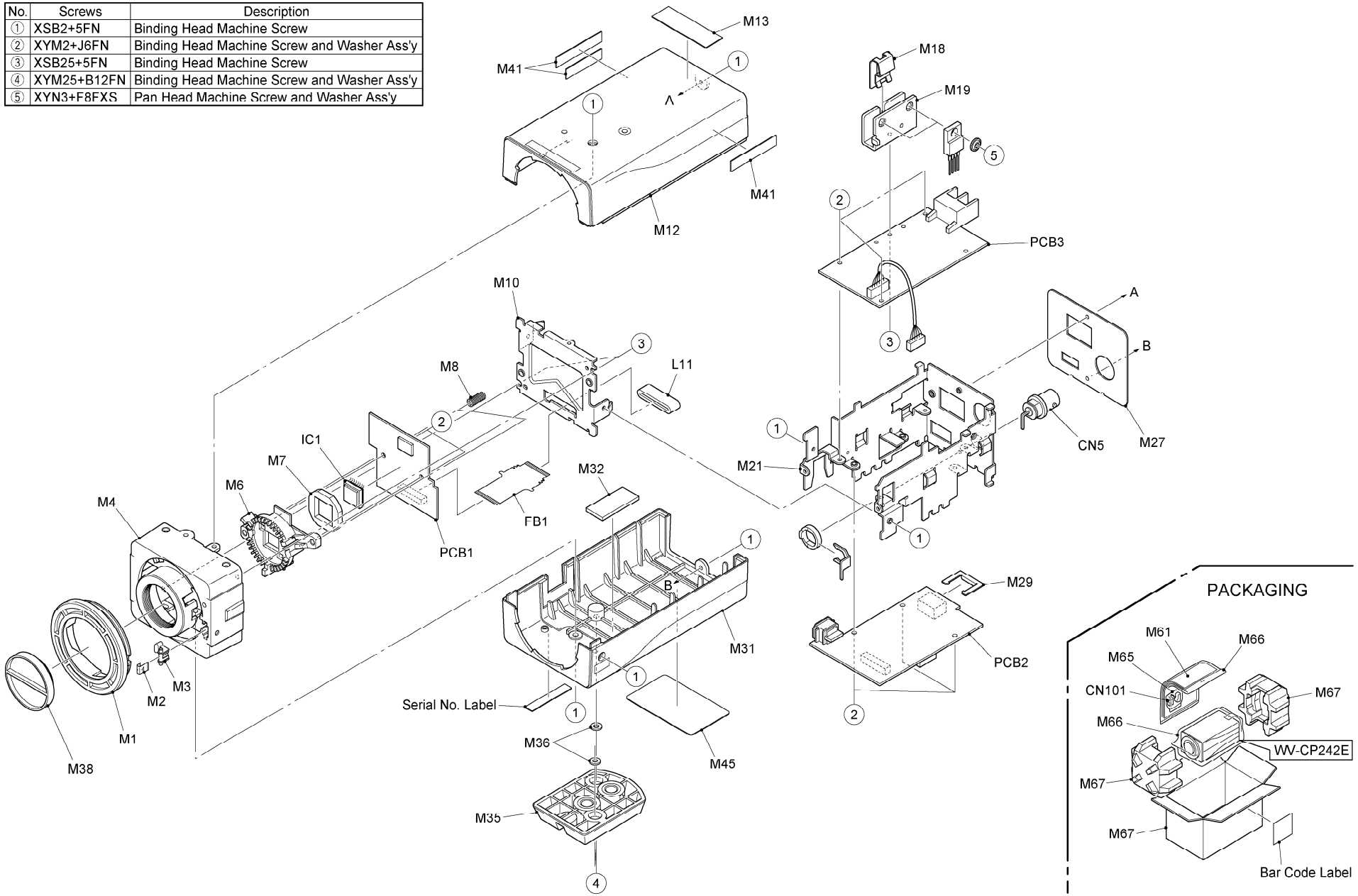
No.	Screws	Description
①	XSB2+5FN	Binding Head Machine Screw
②	XYM2+J6FN	Binding Head Machine Screw and Washer Ass'y
③	XSB25+5FN	Binding Head Machine Screw
④	XYM25+B12FN	Binding Head Machine Screw and Washer Ass'y
⑤	XSB4+6FX	Binding Head Machine Screw
⑥	XWC4BFX	Internal Toothed Lock Washer



EXPLODED VIEW OF WV-CP242E

○Numbers show screws and washers.

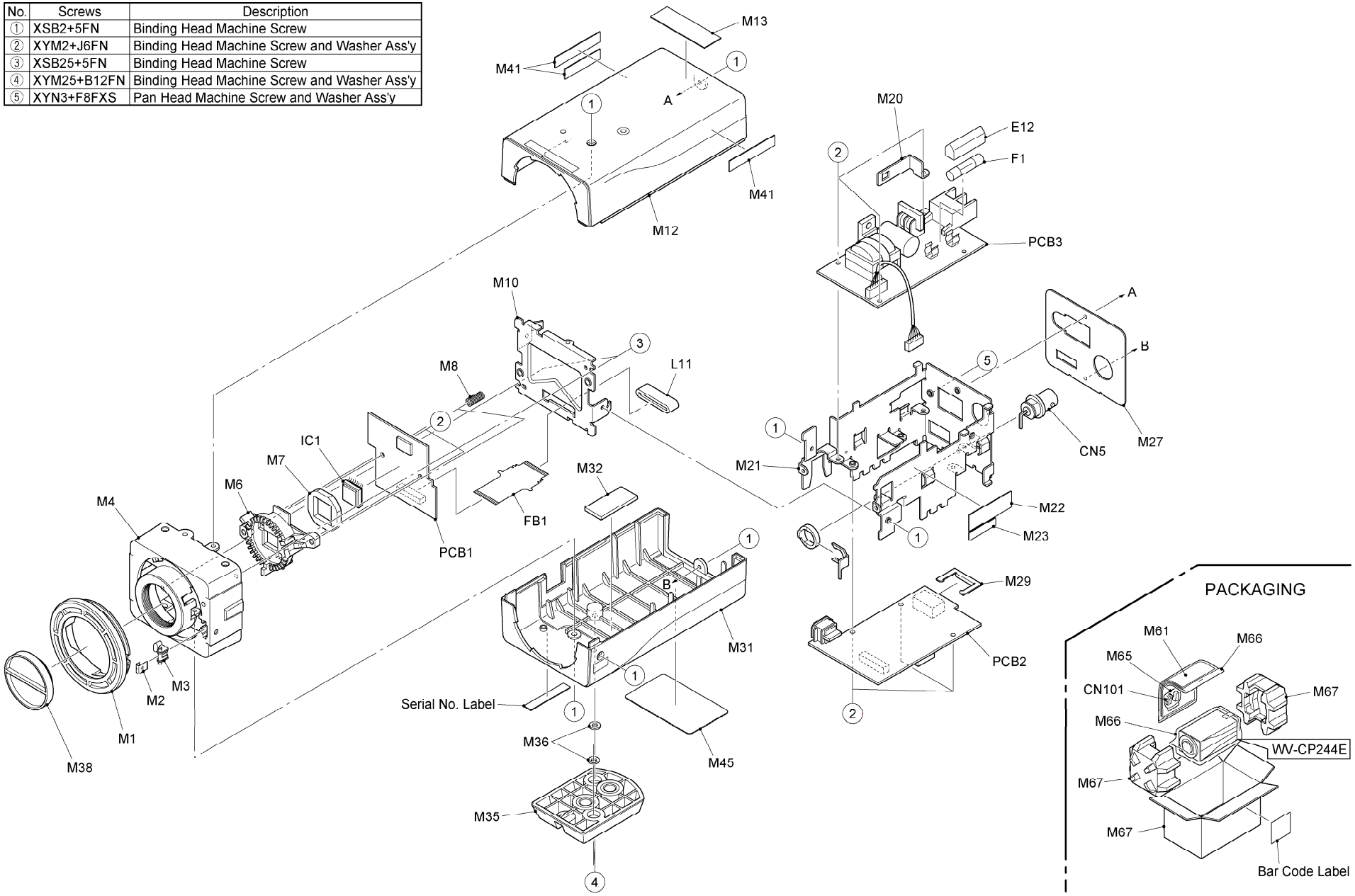
No.	Screws	Description
①	XSB2+5FN	Binding Head Machine Screw
②	XYM2+J6FN	Binding Head Machine Screw and Washer Ass'y
③	XSB25+5FN	Binding Head Machine Screw
④	XYM25+B12FN	Binding Head Machine Screw and Washer Ass'y
⑤	XYN3+F8FXS	Pan Head Machine Screw and Washer Ass'y



EXPLODED VIEW OF WV-CP244E

○Numbers show screws and washers.

No.	Screws	Description
①	XSB2+5FN	Binding Head Machine Screw
②	XYM2+J6FN	Binding Head Machine Screw and Washer Ass'y
③	XSB25+5FN	Binding Head Machine Screw
④	XYM25+B12FN	Binding Head Machine Screw and Washer Ass'y
⑤	XYN3+F8FXS	Pan Head Machine Screw and Washer Ass'y



REPLACEMENT PARTS LIST

Important Notice

1. Components identified by " ⚠ " mark have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
2. RTL : Retention Time Limited (No longer available after discontinuing product).

REF. NO.		PART NO.	DESCRIPTION
MISCELLANEOUS for WV-CP240			
IC1		VCP240EA04YS	Optical Ass'y (CCD)
F1	⚠	XBA2C063ET0A	Current Fuse 630mA 250V for Power Board
FB1		VP240PRZ1A	Flexible Board
L11		J0KD00000030	Ferrite Core
CN5		YWP2367	Connector (BNC) for Main Board
CN11		YWVAR2	Connector Housing for Power Cord
E11	⚠	YWACF250B	Power Cord
E12	⚠	YW840522	Fuse Cover
M1	⚠	V3FA1078A2	Flange-back Adjusting Ring
M2		V4JA1163A3	Flange-back Lock Spring
M3	⚠	V4RA1024A3	Flange-back Lock Lever
M4		V5BA1064A1	Front Escutcheon
M6		V6FA1116A1	Bracket (IR)
M7	⚠	V2FA1362A3	Cool Sheet Cushion (CCD)
M8		V4JA1164A3	Spring (C-CS)(x2)
M10		V2HA2231A2	Front Shield Plate
M12	⚠	V5EA2530A1	Upper Cover
M13	⚠	YFV7MA0099A4	Safety Label (Screw Caution)
M15	⚠	V2PA1290A3	Insulator (Power Board)
M16	⚠	V2PA1297A3	Insulator (Transformer)
M17	⚠	V5KA2357A2	Insulator Cover
M21		V2SA5033A1	Main Chassis
M22	⚠	V7MA1132A3	Safety Label (Fuse)
M23	⚠	V7MA1145A4	Safety Label (Fuse)
M24	⚠	YWA7SA0689A4	Earth Label
M25	⚠	YWSR5N4	Cord Clamp
M27	⚠	V5WA2714A3	Rear Panel
M29	⚠	V2PA1289A3	Insulator (Dip Switch)
M31	⚠	V5EA2531A1	Bottom Cover
M32	⚠	V2FA1363A3	Cushion for Flexible Board
M35	⚠	V2TA1083A2	Mount Adapter
M36		YWV1KA0128A4	Washer for Mount Adapter(x2)
M38		YWBC-2B	Body Cap
M41		V7SA4412A3	Label
M45	⚠	V7QA5876A4	Main Label

REF. NO.		PART NO.	DESCRIPTION
MISCELLANEOUS for WV-CP242E			
IC1		VCP240EA04YS	Optical Ass'y (CCD)
FB1		VP240PRZ1A	Flexible Board
L11		J0KD00000030	Ferrite Core
CN5		YWP2367	Connector (BNC) for Main Board
M1	⚠	V3FA1078A2	Flange-back Adjusting Ring
M2		V4JA1163A3	Flange-back Lock Spring
M3	⚠	V4RA1024A3	Flange-back Lock Lever
M4		V5BA1064A1	Front Escutcheon
M6		V6FA1116A1	Bracket (IR)
M7	⚠	V2FA1362A3	Cool Sheet Cushion (CCD)
M8		V4JA1164A3	Spring (C-CS)(x2)
M10		V2HA2231A2	Front Shield Plate
M12	⚠	V5EA2530A1	Upper Cover
M13	⚠	YFV7MA0099A4	Safety Label (Screw Caution)
M18		YWV2CA0390A4	Hold Plate
M19		V7DA1168B3	Heat Sink
M21		V2SA5033A1	Main Chassis
M27	⚠	V5WA2716A3	Rear Panel
M29	⚠	V2PA1293A3	Insulator (Dip Switch)
M31	⚠	V5EA2531A1	Bottom Cover
M32	⚠	V2FA1363A3	Cushion for Flexible Board
M35	⚠	V2TA1083A2	Mount Adapter
M36		YWV1KA0128A4	Washer for Mount Adapter(x2)
M38		YWBC-2B	Body Cap
M41		V7SA4413A3	Label
M45	⚠	V7QA5878A4	Main Label

REF. NO.		PART NO.	DESCRIPTION
MISCELLANEOUS for WV-CP244E			
IC1		VCP240EA04YS	Optical Ass'y (CCD)
F1	⚠	XBA2C25ET0A	Current Fuse 2.5A 250V for Power Board
FB1		VP240PRZ1A	Flexible Board
L11		J0KD00000030	Ferrite Core
CN5		YWP2367	Connector (BNC) for Main Board
E12	⚠	YW840522	Fuse Cover
M1	⚠	V3FA1078A2	Flange-back Adjusting Ring
M2		V4JA1163A3	Flange-back Lock Spring
M3	⚠	V4RA1024A3	Flange-back Lock Lever
M4		V5BA1064A1	Front Escutcheon
M6		V6FA1116A1	Bracket (IR)
M7	⚠	V2FA1362A3	Cool Sheet Cushion (CCD)
M8		V4JA1164A3	Spring (C-CS)(x2)
M10		V2HA2231A2	Front Shield Plate
M12	⚠	V5EA2530A1	Upper Cover
M13	⚠	YFV7MA0099A4	Safety Label (Screw Caution)
M20		V2SA5034A3	Screw Guard Angle
M21		V2SA5033A1	Main Chassis
M22	⚠	V7MA1132A3	Safety Label (Fuse)
M23	⚠	V7MA1146A4	Safety Label (Fuse)
M27	⚠	V5WA2715A3	Rear Panel
M29	⚠	V2PA1289A3	Insulator (Dip Switch)
M31	⚠	V5EA2531A1	Bottom Cover
M32	⚠	V2FA1363A3	Cushion for Flexible Board
M35	⚠	V2TA1083A2	Mount Adapter
M36		YWV1KA0128A4	Washer for Mount Adapter(x2)
M38		YWBC-2B	Body Cap
M41		V7SA4414A3	Label
M45	⚠	V7QA5877A1	Main Label

REF. NO.	PART NO.	DESCRIPTION	
SENSOR BOARD			
PCB1 (RTL)	VP240EKY1AYS	Printed Circuit Board Ass'y	
IC2	C0JBAB000196	IC	
IC3	MN3112SA-E1	IC	
IC4	NN2038FAQ	IC	
IC5	YWVG4030J283	IC	
IC6	MN6732741	IC	
IC7	YWTC7SH00FUL	IC	
IC8	MN13821-FP	IC	
IC400	C3EBDC000020	EEPROM (See Notes below.)	
Q1	B1ABDB000023	Transistor	
Q2-4	B1ADCF000040	Transistor	
Q300	B1ABCF000060	Transistor	
D1	MA3S132K0L	Diode	
D2	YWHVU359TRF	Diode	
D3	YWHVU17TRF	Diode	
D4,5	MA2Z72800L	Diode	
R1	ERJ3GEYJ100V	Metal	10 ohms 1/16W
R2	ERJ3GEY0R00	Metal	0 ohm 1/16W
R3	ERJ3GEYJ100V	Metal	10 ohms 1/16W
R4	ERJ3GEYJ220V	Metal	22 ohms 1/16W
R5	ERJ3GEYJ105V	Metal	1M ohms 1/16W
R6-8	ERJ3GEYJ360V	Metal	36 ohms 1/16W
R9	ERJ3GEYJ221V	Metal	220 ohms 1/16W
R10	ERJ3GEYJ562V	Metal	5.6K ohms 1/16W
R11	ERJ3GEYJ182V	Metal	1.8K ohms 1/16W
R12	ERJ3GEYJ561V	Metal	560 ohms 1/16W
R13	ERJ3GEYJ562V	Metal	5.6K ohms 1/16W
R14	ERJ3GEYJ100V	Metal	10 ohms 1/16W
R15	ERJ3GEYJ562V	Metal	5.6K ohms 1/16W
R16	ERJ3GEYJ302V	Metal	3K ohms 1/16W
R17	ERJ3GEYJ103V	Metal	10K ohms 1/16W
R18	ERJ3GEYJ161V	Metal	160 ohms 1/16W
R19	ERJ3GEYJ202V	Metal	2K ohms 1/16W
R20	ERJ3GEYJ161V	Metal	160 ohms 1/16W
R21	ERJ3GEYJ104V	Metal	100K ohms 1/16W
R22	ERJ3GEYJ161V	Metal	160 ohms 1/16W
R23	ERJ3GEYJ103V	Metal	10K ohms 1/16W
R24	ERJ3GEYJ101V	Metal	100 ohms 1/16W
R25	ERJ3GEYJ103V	Metal	10K ohms 1/16W
R26	ERJ3GEYJ101V	Metal	100 ohms 1/16W
R28	ERJ3GEYJ102V	Metal	1K ohms 1/16W
R29	ERJ3GEYJ621V	Metal	620 ohms 1/16W
R30	ERJ3GEYJ105V	Metal	1M ohms 1/16W
R31	ERJ3GEYJ103V	Metal	10K ohms 1/16W
R33	ERJ3GEY0R00	Metal	0 ohm 1/16W
R34,35	ERJ3GEYJ103V	Metal	10K ohms 1/16W
R38,39	ERJ3GEYJ103V	Metal	10K ohms 1/16W
R40	ERJ3GEYJ562V	Metal	5.6K ohms 1/16W
R41	ERJ3GEYJ302V	Metal	3K ohms 1/16W
R42	ERJ3GEY0R00	Metal	0 ohm 1/16W

Notes: *• IC1 (Optical Ass'y) is not supplied as Printed Circuit Board Ass'y (PCB1). See Miscellaneous for ordering.*
• IC400 (EEPROM) is empty when it is supplied as IC only. Loading the Initial Data is required.

REF. NO.	PART NO.	DESCRIPTION	
R43	ERJ3GEYJ222V	Metal	2.2K ohms 1/16W
R44	ERJ3GEYJ102V	Metal	1K ohms 1/16W
R45	ERJ3GEYJ201V	Metal	200 ohms 1/16W
R47	ERJ6GEYJ222V	Metal	2.2K ohms 1/10W
R48	ERJ3RHD202V	Metal	2K ohms 1/16W
R49	ERJ3RHD201V	Metal	200 ohms 1/16W
R50	ERJ3GEYJ472V	Metal	4.7K ohms 1/16W
R51	ERJ3GEYJ473V	Metal	47K ohms 1/16W
R300	ERJ3GEYJ101V	Metal	100 ohms 1/16W
R301	ERJ3GEYJ302V	Metal	3K ohms 1/16W
R302	ERJ3GEYJ101V	Metal	100 ohms 1/16W
R303	ERJ3GEY0R00	Metal	0 ohm 1/16W
R400	ERJ3GEYJ103V	Metal	10K ohms 1/16W
R401	ERJ3GEYJ102V	Metal	1K ohms 1/16W
R402,403	ERJ3GEYJ101V	Metal	100 ohms 1/16W
R404,405	ERJ3GEYJ103V	Metal	10K ohms 1/16W
C1	F1H1C473A005	Ceramic	0.047 µF
C2-4	F1H1H103A190	Ceramic	0.01 µF
C5	F1H1A105A004	Ceramic	1 µF
C6,7	F1H1H3R00015	Ceramic	3 pF
C9	MCUV1E104ZFV	Ceramic	0.1 µF
C10	F1H1H150A004	Ceramic	15 pF
C11	MCUV1E104ZFV	Ceramic	0.1 µF
C12	MCUV1E104ZFV	Ceramic	0.1 µF
C13	F1H1A105A004	Ceramic	1 µF
C14	MCUV1E104ZFV	Ceramic	0.1 µF
C15	F1H1A105A004	Ceramic	1 µF
C16,17	MCUV1E104ZFV	Ceramic	0.1 µF
C18	F1H1H101A004	Ceramic	100 pF
C19	MCUV1E104ZFV	Ceramic	0.1 µF
C20	F1H1H101A004	Ceramic	100 pF
C21	MCUV1E104ZFV	Ceramic	0.1 µF
C22	F1H1A105A004	Ceramic	1 µF
C23	MCUV1E104ZFV	Ceramic	0.1 µF
C24	F1H1A105A004	Ceramic	1 µF
C25	MCUV1E104ZFV	Ceramic	0.1 µF
C26	F1H1A105A004	Ceramic	1 µF
C27	MCUV1E104ZFV	Ceramic	0.1 µF
C28-30	F1H1A105A004	Ceramic	1 µF
C31	MCUV1E104ZFV	Ceramic	0.1 µF
C32-36	MCUV1E104ZFV	Ceramic	0.1 µF
C37	YW426225FZT	Ceramic	2.2 µF
C38	YW426106FZT	Ceramic	10 µF
C39	F1J1A4750004	Ceramic	4.7 µF
C40	MCUV1E104KBN	Ceramic	0.1 µF
C41	ECST1VY105ZR	Tantalum	1 µF 35V
C42	F3G1C156A002	Tantalum	15 µF 16V
C43	F3H1A476A001	Tantalum	47 µF 10V
C44	ECST1CY225R	Tantalum	2.2 µF 16V
C45	ECST1AY106R	Tantalum	10 µF 10V
C46	ECST0JX336R	Tantalum	33 µF 6.3V
C47	ECST1CY105R	Tantalum	1 µF 16V
C48	ECST1VY334R	Tantalum	0.33 µF 35V
C49	TAJB226M010R	Electrolytic	22 µF 10V
C50	ECST1AY106R	Tantalum	10 µF 10V

REF. NO.	PART NO.	DESCRIPTION	
C51	F3H1A476A001	Tantalum	47 µF 10V
C52	F1H1E393A002	Ceramic	0.039 µF
C300,301	MCUV1E104ZFV	Ceramic	0.1 µF
C400	F1H1H1R0A260	Ceramic	1 pF
C401	F1H1A105A004	Ceramic	1 µF
C402	F1H1H100A226	Ceramic	10 pF
C403	ECST1AY106R	Tantalum	10 µF 10V
C404	MCUV1E104ZFV	Ceramic	0.1 µF
L1	G3A1R9C00001	Coil	
L2	ELJFC330KF	Coil	33 µH
L3	ELJFC470KF	Coil	47 µH
L4	ELJFC330KF	Coil	33 µH
L5	ELJFC8R2MF	Coil	8.2 µH
L6,7	ELJPC150KF	Coil	15 µH
L8	ELJFC8R2MF	Coil	8.2 µH
L9,10	J0JBC0000046	Coil	
L11-13 (R500-502)	ERJ3GEY0R00	Metal	0 ohm 1/16W
CF1	YW4FS7374	Filter	
CN1	K1MN30A00029	30-pin Connector	
CN2	YW31756316	6-pin Connector	

VIDEO BOARD

PCB2 (RTL)	VP240EKY2AYS	Printed Circuit Board Ass'y for WV-CP240/WV-CP244E
	VP242EKY2AYS	Printed Circuit Board Ass'y for WV-CP242E
IC2	YWTC7W14FUL	IC
IC3	C0JBAS000081	IC
IC4	YWNJM2902VT1	IC
IC5	YWTA7805FTL	IC
Q1	B1ABCF000060	Transistor
Q2	2SK10694TL	FET
Q3	2SD1819QRSTX	Transistor
Q4	B1ADCF000040	Transistor
Q5,6	2SB1218AHL	Transistor
Q7	B1ABCF000060	Transistor
Q8	B1ADCF000040	Transistor
Q9	B1ABCF000060	Transistor
Q10	2SB12190WL	Transistor
Q11	2SD18200WL	Transistor
Q12	B1HFCFA00003	Transistor
Q13	2SC4618	Transistor
Q14	B1ADCF000040	Transistor
Q15	B1ADCF000063	Transistor
Q16	B1ADCF000040	Transistor
Q17	B1HBCFA00006	Transistor
Q18	B1ABCF000060	Transistor
Q19	B1ADCF000063	Transistor
D1	MA2Z72800L	Diode
D2-5	MA4X72600L	Diode
D6	MAZ81500ML	Diode
D7	MAZ80910ML	Diode
D8	YWDA227TL	Diode

REF. NO.	PART NO.	DESCRIPTION	
D9	B0ACCJ000014	Diode	
R1	ERJ3GEYJ623V	Metal	62K ohms 1/16W
R2	ERJ3GEYJ392V	Metal	3.9K ohms 1/16W
R3	ERJ3GEYJ683V	Metal	68K ohms 1/16W
R4,5	ERJ3GEY0R00	Metal	0 ohm 1/16W
R9	ERJ3GEYJ220V	Metal	22 ohms 1/16W
R10	ERJ3RHD513	Metal	51K ohms 1/16W
R11	ERJ3RHD102V	Metal	1K ohms 1/16W
R12	ERJ3GEYJ514	Metal	510K ohms 1/16W
R13	ERJ3GEYJ134V	Metal	130K ohms 1/16W
R14	ERJ3GEYJ102V	Metal	1K ohms 1/16W
R15	ERJ3GEYJ101V	Metal	100 ohms 1/16W
R16	ERJ3GEYJ474V	Metal	470K ohms 1/16W
R18,19	ERJ3GEYJ222V	Metal	2.2K ohms 1/16W
R20,21	ERJ3GEYJ432V	Metal	4.3K ohms 1/16W
R22,23	ERJ3GEYJ104V	Metal	100K ohms 1/16W
R24	ERJ3GEYJ563V	Metal	56K ohms 1/16W
R25	ERJ3GEYJ103V	Metal	10K ohms 1/16W
R26	ERJ3GEYJ432V	Metal	4.3K ohms 1/16W
R27	ERJ3GEYJ563V	Metal	56K ohms 1/16W
R28	ERJ3GEYJ104V	Metal	100K ohms 1/16W
R32	ERJ3GEYJ102V	Metal	1K ohms 1/16W
R33	ERJ3GEYJ563V	Metal	56K ohms 1/16W
R34	ERJ3GEYJ104V	Metal	100K ohms 1/16W
R35	ERJ3GEYJ682V	Metal	6.8K ohms 1/16W
R36	ERJ3GEYJ102V	Metal	1K ohms 1/16W
R37	ERJ3GEYJ154V	Metal	150K ohms 1/16W
R38	ERJ3GEYJ333V	Metal	33K ohms 1/16W
R39	ERJ3GEYJ334V	Metal	330K ohms 1/16W
R40	ERJ3GEYJ153V	Metal	15K ohms 1/16W
R42	ERJ3GEYJ304V	Metal	300K ohms 1/16W
R43	ERJ3GEYJ104V	Metal	100K ohms 1/16W
R44	ERJ3GEYJ684V	Metal	680K ohms 1/16W
R45,46	ERJ3GEYJ104V	Metal	100K ohms 1/16W
R47	YF2116511JT	Metal	510 ohms 1/10W
R48	YF2116161JT	Metal	160 ohms 1/10W
R49	ERJ6GEYJ120	Metal	12 ohms 1/10W
R50	ERJ3GEYJ101V	Metal	100 ohms 1/16W
R51	ERJ3RHD752V	Metal	7.5K ohms 1/16W
R52	ERJ3GEYJ102V	Metal	1K ohms 1/16W
R53	ERJ3RHD222V	Metal	2.2K ohms 1/16W
R54,55	ERJ3GEYJ103V	Metal	10K ohms 1/16W
R56	ERJ3GEYJ102V	Metal	1K ohms 1/16W
R57	ERJ3RHD242V	Metal	2.4K ohms 1/16W
R58	ERJ3GEYJ821V	Metal	820 ohms 1/16W
R59	ERJ3GEYJ222V	Metal	2.2K ohms 1/16W
R60	ERJ3GEYJ102V	Metal	1K ohms 1/16W
R61	YF2116201JT	Metal	200 ohms 1/10W
R62	ERJ3GEYJ222V	Metal	2.2K ohms 1/16W
R63	YF2116201JT	Metal	200 ohms 1/10W
R64	ERJ3GEYJ100V	Metal	10 ohms 1/16W
R65	ERJ3RHD123V	Metal	12K ohms 1/16W
R66	ERJ3GEYJ392V	Metal	3.9K ohms 1/16W
R67	ERJ3GEYJ332V	Metal	3.3K ohms 1/16W
R68	ERJ3GEYJ392V	Metal	3.9K ohms 1/16W

REF. NO.	PART NO.	DESCRIPTION	
R69	ERJ3RHD242V	Metal	2.4K ohms 1/16W
R70	ERJ3GEYJ392V	Metal	3.9K ohms 1/16W
R71	ERJ3GEY0R00	Metal	0 ohm 1/16W
R72	ERJ3RHD302V	Metal	3K ohms 1/16W
R73	ERJ3GEYJ332V	Metal	3.3K ohms 1/16W
R74	ERJ3GEYJ222V	Metal	2.2K ohms 1/16W
R75	ERJ3GEYJ620V	Metal	62 ohms 1/16W
R76	ERJ3GEYJ102V	Metal	1K ohms 1/16W
R77	ERJ3GEYJ100V	Metal	10 ohms 1/16W
R78	ERJ6GEY0R00V	Metal	0 ohm 1/10W
R79	ERJ1WYJ100U	Metal	10 ohms 1W
R80	ERJ3GEYJ103V	Metal	10K ohms 1/16W
R81	ERJ3GEYJ100V	Metal	10 ohms 1/16W
R82-84	ERJ3GEYJ103V	Metal	10K ohms 1/16W
R85	ERJ3GEYJ102V	Metal	1K ohms 1/16W
R86	ERJ3GEYJ363V	Metal	36K ohms 1/16W
R87	ERJ3GEY0R00	Metal	0 ohm 1/16W
		for WV-CP242E	
VR1,2	EVM7JSW30BQ4	Variable Resistor	
C1-3	MCUV1E104ZFV	Ceramic	0.1 µF
C4	F1H1A105A004	Ceramic	1 µF
C6,7	F1H1H103A190	Ceramic	0.01 µF
C8	MVUV1C104KBV	Ceramic	0.1 µF
C9	YW400225FZT	Ceramic	2.2 µF
C10	MVUV1C104KBV	Ceramic	0.1 µF
C11	F1H1A105A004	Ceramic	1 µF
C16	YW426106FZT	Ceramic	10 µF
C17	F1J1C1050002	Ceramic	1 µF
C18	F1H1H510A004	Ceramic	51 pF
C19	F1H1C473A005	Ceramic	0.047 µF
C20	F3G1C156A002	Tantalum	15 µF 16V
C21	ECST1CY475R	Tantalum	4.7 µF 16V
C22	F1H1C473A005	Ceramic	0.047 µF
C23	MCUV1E104ZFV	Ceramic	0.1 µF
C24	F1H1H222A013	Ceramic	2200 pF
C26	YW32Y475F25T	Ceramic	4.7 µF
C27	F1K1E105A017	Ceramic	1 µF
C28	F1J1A4750004	Ceramic	4.7 µF
C29	F1K1E105A017	Ceramic	1 µF
C30	F1J1C1050002	Ceramic	1 µF
C31	ECST1EX475R	Tantalum	4.7 µF 25V
C32	ECST1EY105R	Tantalum	1 µF 25V
C33	MCUV1C105KBM	Ceramic	1 µF
C34-37	F1J1C1050002	Ceramic	1 µF
C38	F3H1E106A001	Electrolytic	10 µF 25V
C39	F1H1H8R00003	Ceramic	8 pF
C40	F1H1H103A190	Ceramic	0.01 µF
C41	F1H1H471A004	Ceramic	470 pF
C43	YW32Y106F16T	Ceramic	10 µF
C44	YWRVJ1A471M	Electrolytic	470 µF 10V
C45	MCUV1E104ZFV	Ceramic	0.1 µF
C46	F3H1E226A002	Tantalum	22 µF 25V
C47	MCUV1C105KBM	Ceramic	1 µF
C49	MCUV1E104KBN	Ceramic	0.1 µF
C50	MCUV1C105KBM	Ceramic	1 µF

REF. NO.	PART NO.	DESCRIPTION
C51	MCUV1E104ZFV	Ceramic 0.1 µF
L1-8	ELJFC8R2MF	Coil 8.2 µH
SW1	K0D152B00001	Dip Switch for WV-CP240/WV-CP244E
	K0D142B00023	Dip Switch for WV-CP242E
CF1	YWNL4532S4R4	LC Filter
CN1	K1MN30A00029	30-pin Connector
CN2	YW31756316	6-pin Connector
CN3	YWB6BZRSM3TF	6-pin Connector
CN4	YWM1938	4-pin Connector (ALC)
TP1	YWRCT2125TPV	Test-pin

POWER BOARD for WV-CP240

PCB3 (RTL)		VP240EKY3AYS	Printed Circuit Board Ass'y
IC1		AN1431ME1	IC
Q1	⚠	B1DACU000002	FET
Q2,3	⚠	YWPC123FY2	Photocoupler
Q4		B1ABGF000003	Transistor
D1	⚠	B0EBKR000017	Diode
D2		B0EAEV000005	Diode
D3		B0ACCK000005	Diode
D4		B0BC6R100010	Diode
D5,6		B0ACCK000005	Diode
D7		B0BA4R700007	Diode
D8		B0BA02800001	Diode
D21		B0JCMG000003	Diode
D22		M1FP3-4063	Diode
D23		B0BA01200008	Diode
D24		B0ACCK000005	Diode
VS1	⚠	ERZV07D471	Varistor
R1		D0GG104JA002	Metal 100K ohms 1/4W
R2		D0GG681JA002	Metal 680 ohms 1/4W
R3		D0GG220JA002	Metal 22 ohms 1/4W
R4,5		D0GG823JA002	Metal 82K ohms 1/4W
R6,7		D0GD224JA003	Metal 220K ohms 1/8W
R8		D0GD682JA003	Metal 6.8K ohms 1/8W
R9		D0GD470JA003	Metal 47 ohms 1/8W
R10		D0GD273JA003	Metal 27K ohms 1/8W
R11,12		D0GD223JA003	Metal 22K ohms 1/8W
R13,14		RRJ6GEYJ221V	Metal 220 ohms 1/8W
R15		D0GD224JA003	Metal 220K ohms 1/8W
R18,19		D0YDR0000005	Carbon 0 ohm 1/8W
R21		D0GD470JA003	Metal 47 ohms 1/8W
R22		D0GD222JA003	Metal 2.2K ohms 1/8W
R23		D0GD470JA003	Metal 47 ohms 1/8W
R24		D0GD123JA003	Metal 12K ohms 1/8W
R25		YFR1220P222D	Metal 2.2K ohms 1/10W
R26		D0YDR0000005	Carbon 0 ohm 1/8W
R27		YWR1220P682D	Metal 6.8K ohms 1/10W
R28		D0GD222JA003	Metal 2.2K ohms 1/8W
R29		D0GD223JA003	Metal 22K ohms 1/8W
C1	⚠	ECQU2A563ML	Plastic 0.056 µF
C2		EEUEB2G100	Electrolytic 10 µF 400V
C3,4		F1K2F223A005	Ceramic 0.022 µF 250V
C5,6		F1K2J101A003	Ceramic 100 pF 630V
C7		MCUV1E104KBN	Ceramic 0.1 µF
C8		YF400681CHJT	Ceramic 680 pF
C9		MCUV1A105KBN	Ceramic 1 µF
C10		F1J1H472A400	Ceramic 4700 pF
C11		ECUV1H103KBN	Ceramic 0.01 µF
C12	⚠	F1B2E1520002	Ceramic 1500 pF 250V
C21		EEUFC1C271	Electrolytic 270 µF 16V
C22		EEUFC0J471	Electrolytic 470 µF 6.3V
C23		MCUV1A105KBN	Ceramic 1 µF
C24		EEUFC1C181	Electrolytic 180 µF 16V
C25		EEUFC0J331	Electrolytic 330 µF 6.3V
L21		G0ZZ00002012	Coil
L22		YWSL675330	Coil
T1	⚠	G4D2A0000090	Power Transformer
CF1	⚠	J0MBA0000011	Line Filter
CN1	⚠	YWB2P3VH	2-pin Connector
E1,2		K3GE1BB00004	Fuse Holder
E3		K1PA06D00003	Wire Ass'y for Video Board CN3

POWER BOARD for WV-CP242E

PCB3 (RTL)		VP242EKY3AYS	Printed Circuit Board Ass'y
IC1		C0DAZHG00005	IC
IC2		C0CAABF00002	IC
D1		B0JCMG000003	Diode
R5,6		ERG3SJ111P	Metal 110 ohms 3W
C1		EEUEB1E101S	Electrolytic 100 µF 25V
C2,3		F1J1E104A073	Ceramic 0.1 µF
C4		EEUEB1E101S	Electrolytic 100 µF 25V
C5		F1J1E104A073	Ceramic 0.1 µF
C6		EEUEB1A101	Electrolytic 100 µF 10V
L1		J0JKB0000004	Coil
CN1	⚠	YWT6944	2-pin Terminal
F1	⚠	K5H312A00002	Current Fuse 3.15A 125V
E1		K1PA06D00003	Wire Ass'y for Video Board CN3

REF. NO.	PART NO.	DESCRIPTION	
POWER BOARD for WV-CP244E			
PCB3 (RTL)	VP244EKY3AYS	Printed Circuit Board Ass'y	
IC1	AN1431ME1	IC	
Q1 ⚠	B1KAB0000009	Transistor	
Q2,3 ⚠	YWPC817X7	Photocoupler	
Q4	B1ABGF000003	Transistor	
D1 ⚠	B0FBFR000001	Diode	
D3	B0ACCK000005	Diode	
D4	B0BA4R700007	Diode	
D5,6	B0ACCK000005	Diode	
D7	B0BA4R700007	Diode	
D21	B0JCMG000003	Diode	
D22	M1FP3-4063	Diode	
D23	B0BA01200008	Diode	
D24	B0ACCK000005	Diode	
VS1 ⚠	ERZV07D680	Varistor	
VS2 ⚠	ERZV07D471	Varistor	
R2	D0GG151JA002	Metal	150 ohms 1/4W
R3	D0GG221JA002	Metal	220 ohms 1/4W
R4,5	YWR25JZHJ112	Metal	1.1K ohms 1/4W
R6,7	D0GD123JA003	Metal	12K ohms 1/8W
R8	RRJ6GEYJ681V	Metal	680 ohms 1/8W
R9	D0GD470JA003	Metal	47 ohms 1/8W
R10	D0GD473JA003	Metal	47K ohms 1/8W
R11	D0GD822JA003	Metal	8.2K ohms 1/8W
R12	D0GD103JA003	Metal	10K ohms 1/8W
R13,14	RRJ6GEYJ221V	Metal	220 ohms 1/8W
R19	D0YDR0000005	Carbon	0 ohm 1/8W
R21	D0GD470JA003	Metal	47 ohms 1/8W
R22	D0GD222JA003	Metal	2.2K ohms 1/8W
R23	D0GD470JA003	Metal	47 ohms 1/8W
R24	D0GD123JA003	Metal	12K ohms 1/8W
R25	YFR1220P222D	Metal	2.2K ohms 1/10W
R26	D0YDR0000005	Carbon	0 ohm 1/8W
R27	YWR1220P682D	Metal	6.8K ohms 1/10W
R28	D0GD222JA003	Metal	2.2K ohms 1/8W
R29	D0GD223JA003	Metal	22K ohms 1/8W
C1	ECQV1334JM	Plastic	0.33 µF
C2	EEUEB1H471	Electrolytic	470 µF 50V
C5,6	F1K2J471A005	Ceramic	470 pF
C7	YWU212F224ZT	Ceramic	0.22 µF 630V
C8	F1J1H101A410	Ceramic	100 pF
C9	MCUV1A105KBN	Ceramic	1 µF
C10	F1J1H472A400	Ceramic	4700 pF
C11	F1J1H223A403	Ceramic	0.022 µF
C12	ECQE6103KF	Plastic	0.01 µF
C21	EEUFC1C271	Electrolytic	270 µF 16V
C22	EEUFC0J471	Electrolytic	470 µF 6.3V
C23	MCUV1A105KBN	Ceramic	1 µF
C24	EEUFC1C181	Electrolytic	180 µF 16V
C25	EEUFC0J331	Electrolytic	330 µF 6.3V

REF. NO.	PART NO.	DESCRIPTION
L21	G0ZZ00002012	Coil
L22	YWSL675330	Coil
T1 ⚠	G4D2A0000071	Power Transformer
CF1 ⚠	J0MBA0000008	Line Filter
CN1 ⚠	YWT6944	2-pin Terminal
F1,2	K3GF1BB00004	Fuse Holder
E3	K1PA06D00003	Wire Ass'y for Video Board CN3
ACCESSORY PARTS/PACKAGING PARTS		
CN101	YFE4191J100	ALC Lens Connector
M61 ⚠	V8QA5816AN	Operating Instructions (English, French)
⚠	V8QA5817AN	Operating Instructions (German, Spanish)
⚠	V8QA5818AN	Operating Instructions (Chinese, Italian)
M65	YWT050003	Polyethylene Bag
M66	PE20X35C05B	Polyethylene Bag
M67	V9CA4484ANYS	Packaging Ass'y for WV-CP240
	V9CA4485ANYS	Packaging Ass'y for WV-CP244E
	V9CA4486ANYS	Packaging Ass'y for WV-CP242E